NEW YORK STATE

Conservationist

October-November, 1949

Courtesy of Charles R. Henschel

"A Good Shot—Adirondacks" by Winslow Homer, 1892

STATE OF NEW YORK CONSERVATION DEPARTMENT

GOOD HUNTING

Good hunting means many things to many people. To some it still means pretty much what it meant to the cave man, the Indian, and the pioneer—meat in the pot. To others it means a good day afield with a fair chance at game.

To us in the Conservation Department it means a lot of work, because we are mandated to provide (among many other things) the best possible hunting for the most possible people. We doubt if you would like to have this job. You can't please all of the people all of the time, and with anything as elusive as good hunting in the Nation's most heavily populated state, it's difficult enough to please even a majority. All we can say is that we do the best we can—through research, management, laws and law enforcement, stocking, and so on—to maintain the maximum supply of game.

But obviously that's only half of the problem of providing good hunting. The other half involves the hunters, not just the quantity but the quality. The lands available for hunting are limited and decreasing, the supply of game is limited by the lands available, but the number of hunters is virtually unlimited and increasing by leaps and bounds. This is the problem of hunting pressure; is there enough good hunting to go 'round?

It seems to us that that all depends on whom you have to share it with.

Unfortunately we have a type of hunter who overcrowds the woods even if he's the only man in them. This is the noisy, reckless, man-with-a-loaded-gun, out to get something before somebody else gets it. This is the poacher, the violator, the selfish, indifferent, uninformed, unappreciative, dangerous (one or all of these things) gunner. We all know him. We all may as well admit that we have quite a few hunters like him, and the damage they do is enormous.

But then we have another type of hunter. This is the quiet hunter. He is small in the landscape. He prefers to be inconspicuous. He knows the laws both of hunting and of conduct and is pleased, even proud, to observe them. He can come home empty-handed and quite truthfully report that he's had a wonderful day. Finally and essentially, he has a profound respect for the game he hunts and something more than respect for the land that shelters and feeds, with wonderful persistence, both himself and his game.

For this hunter, there's plenty of room and good hunting. —Editor

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STATE OF NEW YORK
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conservation primer

ONE day a school teacher called on us. She had been reading our magazine regularly, she said; she was sold on the necessity for conserving our natural resources, and believed, with us, that Conservation Education should start in the schools. Where did we want her to begin? What did we want her to teach? Could we define our objectives and give her an outline to use in her teaching?

No doubt wherever there is such an inclination and willingness to initiate a program of Conservation Education, whether it be in a 4-H Club or a secondary school, there is need for an outline and a statement of objectives. Curriculum experts, in particular, have indicated they would be happy to have in black and white the things Conservation would like to see taught, placed in order, first things first. This alone is reason enough for this article with its outline and statement of the purposes and objectives of Conservation Education.

These objectives were outlined so well by J. Victor Skiff at the recent DeBruce Conference of Educators that they might well bear repetition here. He thinks we should:

(1) Give students sufficient background in our State and national conservation problems so that in our democracy, where public opinion and the legislative process mean so much, they can intelligently exercise their franchise as voters and citizens.

(2) Equip students so that they can carry out their own personal conservation responsibilities in connection with the ownership or stewardship of private property, use of public property, production of raw materials; in short, teach them the responsibilities attending their personal way of life wherever it touches the resources which perpetuate our civilization.

(3) Give our students an emotional drive to do something about conservation problems. This could be called patriotism, civic responsibility, conservation morality; the late Aldo Leopold called it the "Ecological Conscience".

Probably these objectives of Conservation Education never will be attained until we teach all children the basic fundamentals of conservation. Before they leave the grades, they learn at least enough reading to interpret the messages of everyday life, enough writing to communicate their thoughts, enough arithmetic to help them add their grocery bills. We would like to see them learn conservation—at the least the basic fundamentals—enough to enable them to maintain life at a satisfactory level.

These fundamentals we believe should be taught in the grades, because frequently it is the "submarginal kid" who leaves school early and returns to the type of land which most urgently needs conservation activity. It is he whose clapboard house is close to the land of the empty cellars, and he, most of all, should learn the reasons why porcupines, not people, now live there.

In the past he has learned a great deal about the outdoors through well-founded courses in nature study, commonly confused with conservation; the terms are not synonymous, although the subject matter is much the same. He has learned properly to *identify*, but not properly to use.

For a long time now, education has taught man to recognize and to exploit these natural resources. Perhaps the trend should be toward instructing man to use these things intelligently. With that idea in mind, at least, we have assembled the material on the following page, and have placed it in what we and our advisers think is its order of importance as it should be emphasized in any educational program which deals with our natural resources. We hope most educational programs will.

These resources are usually divided into two groups: *Non-renewable*, like coal and oil, and *renewable*, like soil, water, forests, fish and wildlife. It is reasonable to think that the more we can shift the bulk of our dependence for survival to the renewable resources, the longer and more comfortably we shall continue our way of life. So in our conservation outline, we shall consider only the renewable resources, those capable of being replaced. (Soil and Water outlines are published on the next page; the Forest, and Fish and Wildlife outlines will appear in the December-January issue of THE CONSERVATIONIST. Reprints will be made.)

SOIL: First, there is the soil, formed by the disintegrating action of the sun on the rocks down through the ages. The upper layer of this is known as topsoil. Without this topsoil we would die; yet experts tell us that one-third of it is gone through the poor planning and erosion of the past few centuries. Even soil, however, can't sustain life without

WATER: We have as much water as ever, but frequently not when and where we want it, usually because we run it off to sea so fast that it has no chance to sink into the ground. Also, it takes some soil with it on the way. We pollute quite a bit of this water, too, spoiling it for the best of its purposes.

FORESTS: Plants keep man alive and comfortable by furnishing him with food and a galaxy of other products. A forest is a group of plants that furnishes man with more things than we could list on this page in fine print. The number of by-products of forests is unbelievable. One of the best is that they give a man a place to escape from the dangerous complexities of a highly organized culture.

FISH AND WILDLIFE: Many persons have the idea that their Conservation Department is a league for the promotion of fatter pheasants and foolisher fish. Actually, wildlife is only a crop of the land, and as such should be intelligently harvested, weeded when necessary. But wildlife has long since ceased to be only a crop; its loftiest function now is not as an *end* in itself, but rather as a *means* to beckon man to havens he might otherwise miss.

The most revealing thing about making an outline for an action program in conservation is that you can't help one renewable resource without helping all the others. This is good—for teaching either conservation of natural resources or its dependent, our way of life.

This is not the first outline for teaching conservation; we are confident it won't be the last. We don't pretend to have the final answer here, but rather a start, something to revise, something to work from. Maybe that's what we need: something to work from.

—J. D. BULGER

Soil

I. ALL LIFE DEPENDS ON FERTILE SOIL

1. Man depends on plants and animals, which in turn depend on soil.
2. All other renewable resources depend on soil.
3. Loss of soil productivity affects everyone.

II. QUALITY AND QUANTITY OF LIFE DEPEND ON PRODUCTIVITY OF SOIL

1. Some soil types are inherently better than others for supporting life.
2. Healthy soil makes healthy people.

III. SOIL PRODUCTIVITY IS BEING REDUCED BY

1. Movement of soil particles by water and wind (Erosion).
2. Removal of plant food by runoff water (Leaching).
3. Removal of plant growth by man (Harvest).
4. Improper movement of water and air through soil.

IV. WHAT CAN BE DONE TO INCREASE PRODUCTIVITY

1. Use land according to its best adaptations.
2. Add organic matter to maintain or improve soil structure.
3. Maintain proper balance by use of fertilizers (products from sewage disposal plants, etc.).
4. Establish needed mechanical measures to control movement of soil and water (strip cropping, contour tillage, irrigation, diversion ditches, farm ponds, drainage, reforestation, grassing, etc.).

V. WHAT I CAN DO TO HELP STOP THE WASTE

1. Learn the principles of soil conservation.
2. Analyze my own community needs.
3. Encourage public interest.
4. Secure technical aid and apply needed measures.
5. Support Conservation programs.

Water

I. ALL LIFE NEEDS WATER

1. Plant and animal life depend on soil which is unable to function without water.
2. Water itself is a food and a carrier of other nutrients.
3. Bodies of plants and animals consist principally of water. Man himself consists of 70% water.
4. It takes about 500 pounds of water to produce 1 pound of dry matter.

II. AVAILABILITY OF USABLE WATER IS NECESSARY FOR

1. Adequate drinking supply.
2. Rising living standards.
3. Support of many industries.
4. Recreation.

III. WATER IS BEING WASTED BY

1. Rainfall runoff.
2. Unwise use
   a. Removal of vegetation.
   b. Poor farming methods.
   c. Ill-advised drainage.
   d. Industrial misuse.
3. Pollution.

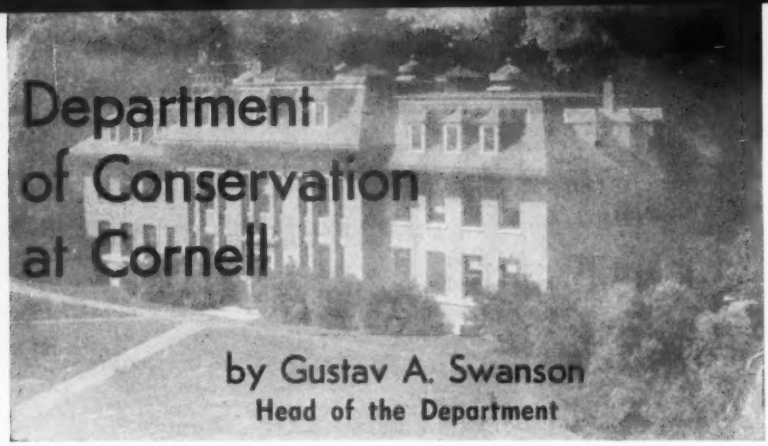
IV. HOW WE CAN USE OUR WATER MORE WISELY

1. Build up our underground water supply.
   a. Use land more wisely.
   b. Improve vegetative cover.
2. Store excess water for time of need.
3. Reduce pollution.

V. WHAT I CAN DO TO STOP THE WASTE

1. Learn principles of water management; recognize relation to soil management.
2. Encourage public interest.
3. Analyze my community needs.
   a. Drinking water.
   b. Agricultural requirements.
   c. Industrial needs.
   d. Sewage disposal.
   e. Pollution.
4. Support Conservation Programs.

The Conservationist would like to thank Hugh Wilson, John Lamb, and Dr. Gustav Swanson for help with this outline.



Department of Conservation at Cornell

by Gustav A. Swanson
Head of the Department

CONSERVATION programs of several types have been prominent in the New York State College of Agriculture at Cornell University for many decades. Dr. G. C. Embody made Cornell such a well known center of research and training in freshwater fisheries during his 28 years there, that even now, 10 years after his death, we still receive several letters each week addressed to him requesting bulletins and information on fish culture. In wildlife conservation also, and in forestry—by establishing the first professional school of forestry in the United States in 1898—Cornell has pioneered. (The forestry school was developed under the leadership of Dr. Fernow, for whom the building is named which now houses the college Department of Conservation.)

Conservation activities at Cornell have been scattered in several different departments, but in September, 1948, formal action was taken to bring together those activities having to do directly with the conservation of natural resources into a Department of Conservation.

Cornell has exceptionally fine facilities for training and research in this field. The "outdoor laboratories" are numerous and near at hand, including five research and demonstration areas, a State Game Farm, an experimental fish hatchery, Beebe Lake, which is only a hundred yards from Fernow Hall, and Cayuga Lake, which is overlooked by the campus.

In Fernow Hall we have, besides the usual classrooms, laboratories, offices, and graduate student study desks, a number of additional facilities for research and instruction. The research collections of birds, mammals, fishes, reptiles, and amphibians include over 165,000 specimens. Several dark-rooms, a small aviary, outdoor animal house, and sound recording laboratory are among the facilities available.

Perhaps the clearest way of giving you a picture of the activities of the department would be to introduce its staff and their specialties, and the fishery field seems like a good place to begin. Dr. Edward C. Raney conducts the course work and an active research program in ichthyology; Dr. Dwight Webster teaches fishery biology courses and guides graduate students in that field; and Dr. Arthur M. Phillips, Jr., of the U. S. Fish and Wildlife Service, who directs the fish nutrition studies at the Cortland Experimental Hatchery, through special arrangements with the Fish and Wildlife Service teaches the course in fish culture. It had been felt for some time that Cornell should offer some training in the marine fishery field, because a number of Cornell graduates have been employed in that field, and beginning in September, 1949, Dr. John C. Ayers comes to us from the Woods Hole Oceanographic Institution to teach the work in the general field of oceanography and marine biology. Limnology, always basic to fishery biology, continues to be offered in the Department of Entomology and Limnology, which has just appointed Dr. David C. Chandler as limnologist. Dr. Chandler will work closely in both instruction and research with the fishery members of our Department.

In the work concerned with birds and mammals and general wildlife conservation, we likewise have a strong staff. In ornithology, Drs. Arthur A. Allen and P. P. Kellogg have made prominent reputations for their ornithological explorations into bird life histories, and particularly in the use of modern methods of photography and sound recording as educational methods in ornithology. Dr. W. J. Hamilton, Jr., has taught mammalogy and economic zoology for many years and has become particularly prominent for his work on conservation of fur animals. Dr. W. Robert Eadie fills a position in mammalogy, concerned chiefly with investigations into better methods of controlling the damage by rodents to fruit trees and other crops. Dr. Oliver H. Hewitt came to Cornell from the Canadian Dominion Wildlife Service in January of 1949 to teach wildlife management, and conduct research in that general field. Dr. Wilson F. Clark took up his new duties as Extension Specialist in fish and wildlife conservation beginning in June of 1949. There is a heavy demand for assistance in this field from youth groups, such as the 4-H and Future Farmers groups, and also from landowners themselves. The extension activities of our agricultural extension specialists are aimed primarily at the farmer, and are conducted in large part through preliminary contacts arranged by county agricultural agents.

Since 1936 the field of forestry at Cornell has been confined to forestry of direct application to agriculture and wildlife management, because it was then that the State determined that it would support but one professional college of forestry and place it at Syracuse. Prof. Cedric Guise teaches our courses in forestry for agricultural and wildlife students, and a course which is justly popular throughout the university in the conservation of natural resources. Professors J. A. Cope and Fred E. Winch conduct an exceptionally heavy program of extension work in the farm forestry field, Professor Cope emphasizing the work with landowners, and Professor Winch that with the youth groups. There are many problems of forestry as directly related to agriculture, soil conservation, and wildlife management, which are in need of considerable investigation, and it has been decided, therefore, to maintain one position in research in that field; Dr. Robert H. Morrow was recently appointed.

CONSERVATION education has become a byword and not a little of the reason for this prominence is the influence of Dr. E. Laurence Palmer, Professor of Rural Education in Cornell's School of Education. For many years Dr. Palmer has written four "Rural School Leaflets" each year, and these have been distributed by the tens of thousands throughout the rural schools of New York. Because of his intense personal interest in conservation, he has directed many of these toward conservation education.

Such a "once over lightly" treatment omits mention of many of the important conservation activities at Cornell, but the reader who is interested in more details may have a pamphlet describing them more fully if he will send us a postcard request. Suffice it to say that in the three phases of extension, research, and professional training, we are doing our best for conservation in the State of New York.

TRAPPING SEASONS FOR MUSKRAT and MINK

FOR many years the trapping seasons for muskrat and mink in New York have been set at different times of the year. At present, the former opens in late winter or early spring, the latter in the fall. Since 1938, fall trapping of muskrats has been prohibited. This has resulted in considerable controversy among trappers, many of whom feel that the two should coincide. The present separation of the two seasons is in accord with recommendations of this Department based on research studies. This article has been written to explain why this arrangement is believed to be the best management policy.

Fur bearers represent the one group of wild game which may be sold legally in this State. The primary objectives of regulations governing the trapping of these species are (1) to provide for harvesting the available surplus and yet maintain an adequate breeding stock, and (2) to take them when their pelts are most valuable.

For muskrats, data gathered by Department research workers show that pelts taken in late winter or spring in New York are unquestionably superior to those taken at any other time. The fur trade classes fall pelts in the lowest primeness grade recognized. This is corroborated by information compiled by the U. S. Fish and Wildlife Service whose workers record that fur auction companies appraise spring pelts about 21 per cent higher than "falls" and about five per cent higher than "winters". Even the fact that many spring pelts are damaged (from fighting in connection with the breeding season) does not alter the greater average value of such fur. A wise open season, therefore, should include the spring period, i.e., March and April. But it also seems evident, by and large, that two months' trapping is the maximum this species can stand. In fact, if trapping were permitted for only one month during the fall, it would be impossible to maintain muskrat populations along small streams because the animals are very easy to trap in such situations at that time. Thus, considering the muskrat alone, it is best for the trapping season to fall sometime during the months of February, March and April, depending on the region of the State.

For mink, on the other hand, pelt primeness is highest during the fall, although the fur may still be good until early winter. This calls for a season beginning about the first of November. In this case, under present conditions, it can extend throughout most of the winter without danger of an excessive take, as trappers catch few minks when confronted by heavy snow and freezing weather.

IF we had in New York only muskrats, or only mink, or if they were each confined to separate regions of the State, there would be little disagreement with setting the respective trapping seasons as outlined above. Actually, however, not only do both species occur in all counties, but they also occupy the same type of habitat and they can be taken in similar sets using the same size of trap. The sentiment for coincident seasons stems from the fact that some muskrats are taken accidentally, and *many* not so accidentally, in traps "set" for mink during November and December. Trappers are reluctant to discard such pelts.

Virtually all proposals to make the two seasons coincide advocate opening the muskrat season in the fall. In other words, muskrat values would be sacrificed, ostensibly for the benefit of the mink trapper who takes muskrats accidentally. Research findings indicate that if this were done, the *annual loss in value of the muskrat crop would exceed the total value of the mink taken each year—hardly sound economics!*

The contention that it is impossible to avoid taking substantial numbers of muskrats in *bona fide* mink sets is not wholly true. Of course, inexperienced trappers have some difficulty. But, if mink sets are made in proper places, only an occasional muskrat need be taken. A skilled professional trapper co-operating with Department research personnel caught 107 mink and only nine muskrats in such sets over a two-year period. On the other hand, the disadvantage of a fall mink season is that unscrupulous muskrat trappers would have legal sanction for fall operations under the guise of mink trapping. This should not be considered a sufficient reason, however, for a change in the muskrat season. Such a change would reduce trapper income and quite likely deplete the muskrat population in many sections.

A RELATED argument is that many animals would be taken during the fall which otherwise would die before spring and thus be a total loss. In answer, data indicate that natural overwinter mortality is rarely significant in this State.

These are the chief reasons why it is considered unwise to have the muskrat and mink seasons coincide. The present dates of open season are not perfect, perhaps, but in the light of existing knowledge they are about as near the ideal as is possible despite the fact that unscrupulous trappers will continue to set traps for muskrats during the mink season and claim they are set for mink.

At the same time, it must be recognized that muskrats are taken accidentally in mink traps by honest trappers, especially inexperienced ones. Can anything be done about it? Yes, a great deal can be done provided a trapper wants to do it. Each trapper can see to it that, to the best of his ability, he sets mink traps for mink and not for muskrats. This can be done, as demonstrated by the records of the professional trapper mentioned above. Anyone who does not have the knowledge to set a relatively muskrat-proof mink set should seek the assistance of a good mink trapper.

—ART COOK,
Game Research Investigator

the Ruffed Grouse

"PARTRIDGE" to the northern woodsman, "pheasant" to the southern mountaineer, the ruffed grouse is held in high esteem as a game bird throughout its range. Considering its characteristic wariness where heavily hunted, one is apt to wonder at its having once been dubbed "fool hen". Yet, even today, in wilderness areas individuals may be encountered which merely peer at one from the ground or fly to a low branch beside the trail. Obviously the bird is adaptable—a major reason why it has continued to thrive.

The ruffed grouse is found only in North America and belongs to the same family as the sharp-tailed grouse, prairie chicken and ptarmigan. Well known to most upland hunters, it may be described as a brownish, fowl-like bird about the size of a bantam hen, with a dark, partially concealed ruff on each side of the neck and a fan-shaped tail having a broad, dark subterminal band. Adults average slightly less than a pound and a half in weight during the fall. Two pound specimens have been recorded but they are rare.

A question continually argued by sportsmen is how to distinguish the sexes. Dissection is the only positive method. However, while exceptions are frequent, males usually have tail feathers over six inches in length, females less. Moreover, the tail band is normally unbroken in the male, but interrupted on the central tail feathers in the female. During this Department's Ruffed Grouse Investigation only one female was examined which had a solid tail band.

The range of the ruffed grouse is greater than that of any other nonmigratory North American game bird, extending from coast to coast across Canada and into Alaska, as well as south in the mountains to central Utah and northern Georgia. In New York it is generally distributed throughout the State, being most abundant in the abandoned farm areas south of the Mohawk Valley and Ontario Plain, as well as in various localities east of the Hudson River and about the periphery of the Adirondack forest. It is primarily a bird of woods edges and the intermediate stages of forest succession, thriving best in coverts comprising an irregular pattern of types.

Grouse are sedentary. Once a bird has selected a "territory", it tends to live out its life within a relatively small radius. Nevertheless, they sometimes travel considerable distances, especially young birds before their first breeding season. The so-called "crazy flight", characterized by birds flying blindly against buildings or through windows, or being found in cities and other unnatural places, seems primarily a trait of first year birds seeking a place to settle down. Adult grouse rarely form flocks, although loose groups often occupy the same patch of winter shelter.

How fast can a grouse fly? Speeds approaching 50 miles per hour have been recorded, although the average of birds flushed in the woods is about 40 miles per hour.

Perhaps the most distinctive habit of the species is the drumming of the male. This performance is a phase of courtship and serves to announce the whereabouts of vigorous cocks both to females and to other males. In executing this invitation to love or war, the male grouse, usually from a slightly elevated perch such as a log, stump or boulder, beats the air with his wings, producing a hollow, ventriloquistic sound which commences as a series of distinct "thumps"—followed by a succession of strokes so rapid that they merge in a rolling whirr—and ends with a single weak beat. The sound of a farm tractor or a stationary gasoline engine at a distance can easily be mistaken for a drumming grouse. Although it has been heard during every month of the year, drumming is at its height during late April and early May.

The female makes her nest on the ground, a mere depression in the leaves. Most often it is at the base of a tree or stump. Egg-laying, in New York, usually begins about the end of the third week in April. First clutches average 11.5 eggs. The incubation period is about 24 days and the great majority of nests hatch during the last week of May or the first week of June. Hens whose first clutches are broken up before being completed or very early in incubation may renest, the average number of eggs in such cases being 7.5.

Because incubation is not begun until after the full clutch of eggs has been laid, all the chicks hatch within a relatively short period. As soon as they are dry, the hen and her brood leave the nest. The group travels together for the remainder of the summer. The chicks begin to fly when about ten days old. As they develop they become more and more independent. About mid-September the brood begins to break up and from then on each bird shifts for itself.

THE grouse is primarily a plant-eater, although insects are the chief food of the chicks during their first two weeks. Furthermore, the fact that it normally subsists on buds when snow covers the ground enables it to survive northern winters in good condition. Trees and shrubs furnish the bulk of its food, the principal species in New York being aspen, cherry, birch, raspberry and blackberry, hop-hornbeam and thornapple. These vary seasonally both in relative rank and in the part of the plant eaten. Buds and catkins predominate in winter and spring, fruits and seeds in summer and fall. The experienced grouse hunter well knows the attractiveness of an old apple tree along a woods edge in the fall.

Fortunately the reproductive potential of grouse is high. This explains why they often recover rather rapidly from periods of scarcity. One pair and their progeny would number more than 33,000 at the end of only five years

if all sources of loss were removed. In actuality, however, this potential is reduced by a host of influences which translate it into productivity and populations of mature birds. This is a basic pattern among all life.

The effect of these influences is progressive. First, some of the hens may not nest, not all the eggs laid will be fertile and not all those that are fertile will hatch even though the clutch as a whole is successful. Then, many of the nests will be completely unsuccessful. Of the chicks which do hatch, many will fail to survive the brood period. Finally, those that reach adulthood in the fall will be further reduced before the next breeding season. Based on the Ruffed Grouse Investigation, losses during the nest, brood and overwinter periods average 39, 60 and 47 per cent, respectively. Yet they vary constantly, resulting in a net gain one year, a loss another. The accompanying graph illustrates a representative sequence for a population which is increasing. It is important to realize that such mortality is entirely normal.

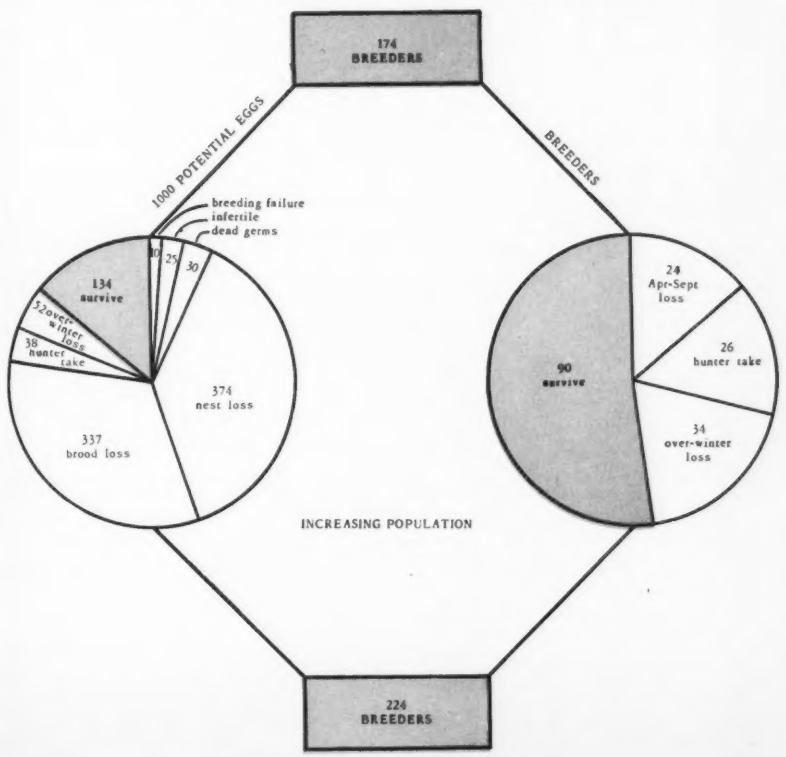
From time to time, however, more severe losses, especially among chicks, have resulted in periods of scarcity. The recurrence of such "lows" has been considered cyclic, although the interval between them does not appear uniform.

Over a period of years, the breeding population level tends to fluctuate about a mean which is governed by the quality of the habitat involved. Of particular interest, from a management point of view, is the fact that even though above-average nest and brood survival may result in a high fall population, overwinter losses tend to compensate so that the breeding population the following spring is not increased proportionately. The poorer the habitat the more pronounced is this relationship. Furthermore, the grouse themselves exhibit an intolerance to densities (except during the brood period) of more than 25 per 100 acres even in the best habitats. It is significant, also, that a considerable portion of the hunter take, which in well-gunned coverts is roughly 17 per cent of the fall population, is deductible from the overwinter mortality which would otherwise occur. Thus hunting season regulations should be flexible according to the size of the crop. The authority which was given the Department by the Legislature eight years ago permits the fixing of hunting regulations late in the summer for the coming fall—which makes such flexibility possible.

The number of birds a hunter will find in the fall depends on the size and productivity of the breeding population. Fall abundance averages double that of the previous spring, more in especially favorable years. When an average or higher breeding stock is present this will provide good hunting. In the better grouse territory of New York, fall densities average about 12 birds per 100 acres and in some years individual covers may have twice as many. Yet even in years of generally high numbers, instances of scarcity are not uncommon.

It has been pointed out that the average level of grouse abundance which may be expected for a given covert is governed by the quality of the habitat. Therein lies the key to management. Only by improving the habitat can this level be raised. Temporary concentrations are unstable in proportion to the degree to which they exceed the carrying capacity of the range. Making poor coverts good and good coverts better is the only sound way to improve grouse hunting prospects. The more high-quality coverts in an area, the greater will be the average shootable surplus of birds, as well as the more rapid the recovery following low periods.

AVERAGE LIFE EQUATION OF INCREASING GROUSE POPULATION



BECAUSE our better grouse range is very largely private land, such management must be carried out by the landowner or other local interests. In some localities, however, the opportunity for improving grouse habitat is rather limited. The abandonment of poor farms and the small wood cutting operations of recent years have created virtually ideal conditions in many areas. Nevertheless, it is seldom that some improvement cannot be made, depending on the degree of interest among those concerned.

Most in need of treatment are coverts deficient in winter shelter, and extensive tracts of uniform type lacking openings and mixed covers. Winter shelter can be made more adequate by encouraging low-growing conifers, especially in scattered clumps, by either planting or release cutting. Desirable cover diversifications can be created by spot-lumbering of mature trees and by breaking up dense woods with small slashings. Grazing will help to maintain overgrown lands, which are an important element of good grouse habitat, but cattle should be fenced out of woodlands. The control of fire is also essential.

But, regardless of how management may raise the average level of grouse abundance, its numbers will continue to fluctuate. Good years will be followed by lean, and lean years by good again. Yet, given a suitable habitat, ruffed grouse, in the words of Thoreau ". . . . are sure to thrive like true natives of the soil, whatever revolutions occur."

—ROBERT W. DARROW,
Supervisor of Game Research

John Galusha of Minerva, 1905

guides

AMONG the mammals of New York fast moving toward extinction and already more legendary than real is the old-fashioned Adirondack guide (pronounced goyd). The few remaining members of the two species, those with the double-bitted coffee-dunked strainer-type mustachio and those without, have now attained the status of local characters (they are aware of this) and spend most of their time beguiling themselves and their prey with stories of how things used to be. Things were better then. Some still do a little light guiding (pronounced goydin) but most are now holed up behind a woodpile cut by their grandchildren, in the mountain towns where they were born.

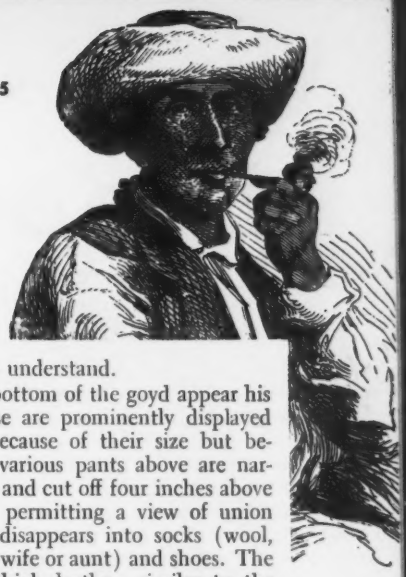
We speak here of the second generation of guide, the generation that reached maturity along about 1900. But before enlarging on this North Woods phenomenon it might be fitting to say something about those that came before and have come after him. The first was a more rugged generation, a product of the post Civil War days when the Adirondacks were a real rather than a preserved wilderness, when the first sizeable run of tourists was "staging in" from Port Kent to Keeseville to Lower Saranac, or from Lake George to Minerva to Long Lake, or from Albany to Booneville and thence on horseback to the Fulton Chain.

Guides in those days were the native sons of the wilderness. Most famous of them all was Mitchell Sabattis of Long Lake, but there were others—Alvah Dunning, John Cheney, the Plumbleys, Cash McGraw, George Ring, Alonzo Dudley, the Sweeneys—who knew the woods and who for two-fifty a day fee and one dollar a week for food would undertake to make camp, cook, comfort, and guide for the gentlemen who hired them. There were scamps in the crowd even then, but with the help of Adirondack Murray and other writer-sports the guides of the period established themselves as rough diamonds and frontier philosophers with whom any gentleman might indulge himself in a fireside chat before turning in for the night.

Guides were a necessity then, not a luxury. There being a vast wilderness and few brochures or maps telling what to do in it or how to get around in it, guides had a monopoly on information that guaranteed them both respect and good business. But as the wilderness opened up and more and more became known about it, and as information on how to hunt and fish became more widely available, the sporting public in New York developed an independence and self-reliance that boded ill for guides and guiding.

So that today we have only 532 licensed guides in the State, all but 26 of them in the Adirondacks. This is too bad, because there are still plenty of times and places in which, as Adirondack Murray said, "a good guide, like a good wife, is indispensable to one's success, pleasure and peace."

Before returning to our fast disappearing guide of the second generation, we might inquire into those of the third—or present. In order to guide for hire, all 532 of them are required to have a license and wear a badge issued by this Department and selling at two dollars a year. The application for the license must be endorsed by a Game Protector and by a licensed guide, and must be approved by the District Game Protector of the district in which the applicant lives. On the application the prospective guide is required to state the type of party he feels himself qualified to take out, and also the territory that he knows well enough to operate in. He is required to answer questions about his experience and about his ability to swim, handle boats and canoes, read a U. S. Geological Survey map, and cook. At the conclusion of



Mitchell Sabattis of Long Lake, 1865

and guiding

his application he signs a sworn statement that he has never been convicted of a violation of the Fish and Game Laws.

Upon approval of his application he becomes a licensed guide. What then? Then he assumes "full responsibility for the welfare and comfort" of the parties in his charge; agrees to report all violations to the nearest Game Protector; agrees to attend at least one annual meeting called by his District Game Protector for the purpose of instructing guides and explaining the Conservation Law; agrees to file a brief annual report concerning his activities; understands that any violation of the Fish and Game Laws on his part will result (among other things) in the loss of his guide's license, and that while guiding he may not hunt or carry a gun other than a properly licensed pistol or revolver.

The purposes behind this licensing procedure are two: (1) to establish a type of guide that will be of real benefit to the sportsmen of the State, and (2) to foster a closer relationship between guides and this Department—which regards a good guide as a potent influence for law and order and good conduct afield. (Until 1944 guides were vested with the powers of Game Protectors, but in that year the Legislature repealed this provision of the Conservation Law.)

It should be pointed out before closing this subject that the Conservation Department has jurisdiction over guides only in the Adirondack and Catskill Forest Preserve counties. Elsewhere in the State, guides are on their own and require no license.

HAVING brought the guides-and-guiding situation roughly up to date, we return now to our starting point. The guide of the first generation, the Noble Frontiersman like Sabattis, has had many an historian; the guide of the third generation is still with us and awaits development and subsequent recording; but the guide of the middle period is passing on and needs preservation, if not by taxidermy, then otherwise. A physical description would appear to be indicated; the term *goyd* will be used throughout to indicate the product of the middle period.

The size and shape of the goyd is determined primarily by the amount of pork fat (pronounced *sausage gravy*) consumed, and only secondarily by genes and inheritance. In early years the goyd is able to adjust the pork fat by dint of hard work; in later years, with less work but the same appetite, the pork fat adjusts the goyd. In general it may be said that at any age and regardless of height the goyd cuts an impressive figure; the older, the more impressive.

We proceed now to the dressing of this figure. At the top of the goyd is his hat. Next to his 32 Special this is his most prized possession, but whereas he has only one gun he is likely to have two or three hats because he feels that in order to dress properly for a variety of occasions it is necessary to change only hats, not clothes. The *visiting* or *store* hat sits awkwardly and is always conspicuously new, no matter how many years it has been kept in the box it was bought in; the *character* hat, not owned by all goyds and worn only for an audience, is a broad-brimmed affair requiring special carriage; the *wearin'* hat, on the other hand, has been molded to the head by many years of steady use and vet is capable of minor adjustments of brim and crown to express the mood of the moment.

Contrary to general opinion, none of these hats is ever adorned with trout flies or other paraphernalia; the hat must stand on its own or else it's time to secretly break in another one.

The inner vestment of the goyd is the union suit, regardless of season, but this appears outwardly at neck, wrist and ankle on warmer days and even on colder ones if the effect seems to justify the exposure. In order to adjust himself to drops in temperature the goyd customarily relies upon the addition of both shirts and pants, the maximum number of pants observed by this writer being four although our correspondent in Owls Head claims that five was the average during the winter of '47. The problem of supporting these pants is solved by a suspenders-and-belt combination which this writer does not even pretend to understand.

At the bottom of the goyd appear his feet. These are prominently displayed not just because of their size but because the various pants above are narrow-cuffed and cut off four inches above the ankle, permitting a view of union suit as it disappears into socks (wool, knitted by wife or aunt) and shoes. The shoes are high leather, similar to the type that the Army considers appropriate, and are replaced only when absolutely necessary with a rubber type.

Several other peculiarities with regard to clothing distinguish the goyd. (1) He never wears a raincoat, possibly because he hates rain like a chicken and is seldom to be found out in it. (2) He has a profound distrust of buttons. The reason for this is not known, but it results in the use of king-size safety pins to secure important openings even though such openings are already secured with healthy buttons. Neither is it known what of value the goyd fears to lose in the event that either type of fastening gives way; apparently a sense of personal security is involved. (3) Watch chains, the heavier the better, are standard equipment, and are removed with the store teeth only upon retiring. In addition, a number of worn but carefully knotted cords, suspended at various points about the person of the goyd, disappear into his pockets and presumably provide direct connection with articles of importance.

Such is the goyd. We encountered one of these characters last fall. It was during the hunting season and he was sitting on a rock in the sun, just beside the dirt road where he'd left his car.

"Afternoon Sam," we said. "What you doing?"

"Goydin. Been here goydin all day."

"That so? Don't see your hunters."

"Well," Sam said, "I got a party about 40 rod over down in under thataway. He's settin' on a blowdown. Been settin' six hours. Then I got another party down back in over thataway. He's settin' on a rock. Them fellers is deer huntin' and I'm drawin' ten dollars a day."

O Tempora, O Goydin!

—P. W. Fosburgh

the elm

Flora

ELM trees are like robins. They are so much with us, and so completely "urbanized" that even the city slicker who can't tell one tree from another still knows an elm when he sees one. Elms are, in fact, more than trees; they are a species of domestic architecture. The sturdy, buttressed trunk, the furrowed bark, the arching boughs, the luxurious foliage of summer and the intricate pattern of twigs and branches against the winter sky—all these combine to express those elements of structure and design—strength, grace and symmetry—that have been sought by craftsmen builders throughout history.

Like other forms of architecture, elms frequently become monuments, and a large number of our "historic" trees have been elms. The Father of our Country seems to have had a habit of resting under elms in the course of his travels, as evidenced by "Washington elms" all the way from Massachusetts to Mount Vernon. New York State has had its share of famous elms, such as the Council Elm Tree at Johnstown, the Fort Stanwix "sapling" at Rome, and the Caledonia Council Elm. Most of our historic trees are, of course, American elms. In the older communities of eastern New York, there are, in addition, some magnificent English elms, planted in the early years of settlement. The most famous of these is the one growing beside the old "Senate House" at Kingston.

The biggest native elm of which there is a definite record is the one at Wethersfield, Conn., which in 1946 measured 30 feet three inches in trunk circumference, 147 feet in spread, and 97 feet in height. In New York, the American elm appears to reach a maximum of about 21 feet in circumference, measured at 4½ feet from the ground (see illustration). Another elm of dimensions approximating the one in the illustration (which is growing in a field near Center Berlin in Rensselaer County) was found growing near Sharon Springs in 1941. (If any of our readers can produce a New York elm larger than this, let's have the story.)

Other elms native to New York are the slippery elm, somewhat less common than the American elm but well known for its mucilaginous inner bark, and the cork or rock elm more often found in the western part of the State, which has a tall, straight trunk and cork ridges on the twigs.

Compared with its value as a shade tree, the industrial uses of elm are of small account here in New York, and are in fact limited principally to the manufacture of baskets. On the farm, elm is still used for "stompin planks" in horse-stalls, though most of the barns built today have a tractor where the horse used to be. But who cares about cutting elm into saw-logs when its real function is to beautify the landscape? What matter if elm is of crooked grain, hard to work, unsplittable, subject to warping, and makes some of the world's worst firewood? Elm is destined for none of these mundane things, but rather to stand alone in a green meadow, with contented cows underneath; to point up that bend in the river; to lend an air of coolness and dignity to some spacious lawn; or to frame the streets of ancient villages with its Gothic arch. All these things our elms will do, if they can survive the attacks of the parasites which are now threatening their existence.

Is the elm tree living on borrowed time? Will it eventually join the American chestnut in the limbo of nearly extinct species? Part of the answer is given in the article by Dr. Rankin on the opposite page. The final answer, insofar as shade trees are concerned, will have to be given by the citizens and local communities of the State. Any locality can have its elms, but not cheaply, and certainly not by sitting idly by while the Dutch Elm Disease and that other pest, less dangerous, but even more universal, the Elm Leaf Beetle, take their toll. (*If the tree turns rusty-brown all over as the summer progresses, it's Elm Leaf Beetle; if one branch or set of branches turns yellow suddenly, while the rest of the tree is green, it's probably Dutch Elm Disease.*) Elm Leaf Beetle can be controlled by spraying, but here again community action is the answer. To anyone who has a regard for trees, the general neglect of shade trees in the average New York village or small city is a shocking thing. The larger cities usually employ trained foresters or arborists to care for the trees along the streets and in public parks; but in the smaller places the shade tree problem seems to come under the heading of "nobody's business" and anyone who will take the trouble to look around him can see that the heritage of the trees planted, often by the founders of the community, is being lost by default.

The elms, as well as the other shade trees of New York State, constitute a challenge to every tree-lover and conservationist, and to every organization interested in community development and the out-of-doors. Will this challenge be successfully met?

—E. W. LITTLEFIELD

dutch elm disease

by W. Howard Rankin,

Department of Agriculture and Markets

ALARM concerning the future of the elm trees of the cities, villages and the countryside of the northeastern states dates back to 1933. The New York State Department of Agriculture and Markets assumed a leading role with the adjoining states and the Federal Government to do what was possible. The New York State College of Agriculture provided a vigorous and effective research staff. Eradication measures failed not because of faulty or inadequate application, but because the disease spreads into new territory hidden away in dead elm wood. Diseased elms do not appear until several years after the fungus is well established in an area.

Since 1934, the disease has gradually moved northward and has become established in the Hudson Valley counties, recently reaching Lake George and Warrensburg. Also, from a separate center of foreign origin, discovered in 1939 near Binghamton, the disease in less dangerous form has moved northward throughout the east-central counties into the Adirondack mountains. From a third center in Quebec Province, Canada, the disease is expected soon to appear in the northern New York counties.

There are no mysteries about this disease that have to be solved before it can be controlled. The basic facts were worked out several years ago. The disease is favored by the environment of the village and city. Elms for shade and ornament under lawn, park and street conditions are more vulnerable than their rural and woodland cousins. After the first elm dies of this disease in any locality the disease is there to stay. *Dead elm wood is the only place from which the infection of healthy elms can come.* Elms less than 200 feet away from the dead wood are particularly endangered; elms up to 500 feet are occasionally infected, but beyond that distance only very rarely. The season for the majority of the infections from dead elm wood is in the spring—April to early July. In late summer and fall the danger is slight.

Elm wood is a source of infection during the few months following its death. *The dying or broken branch in a tree, and cut elm wood on the ground, are equally as dangerous as an elm killed by the disease.* Actually it is only the bark of such wood that breeds the fungus and the bark beetles that carry it. These bark beetles seek out such wood as an abode. No damage to living elms would result from the family life of these beetles were it not for the fact that they like a change of diet. Each new generation of adult winged parent beetles feeds on the small succulent twigs of elms for a few days while out seeking a new home. Luckily they are not very efficient in placing the fungus they carry on their bodies in just the right place at the right time. One of several hundred beetles that feed on a given tree actually causes the infection.

An infected elm may or may not show any signs of the disease the first summer. The destructive effect is usually postponed until the following spring or summer, or even for two years after infection. Very few trees that once show signs of the disease can be saved by pruning, watering or fertilizing.

THE Department's efforts have been advisory since 1940. The objective has been to keep the tree owner fully aware of conditions in his neighborhood and recommend action. To this end exploratory surveys are made to determine the progress of the disease into new territory. Within the area where the disease is established more intensive surveys are made annually to locate new outbreaks and dangerous dead elm wood accumulations. These inspections are made without request in all cities, villages and other residential and institutional centers where elms have a recognizable civic value. Recommendations are made direct to the owners, both private and public, so they may act before spread occurs. In some cities, villages and neighborhoods these recommendations are sponsored by individuals or groups as a civic service.

FEW cities and villages, so far, have suffered excessive elm losses through neglect or non-interest. Many others, however, have not kept losses as low as was possible. This has been due to only partial annual clean-up of the tree and wood locations listed as essential hazards by the Department's surveys. *Experience has shown that when a 90 per cent clean-up of listed dead material is attained annually, the disease is suppressed to minor proportions.*

Examples from among the places that received their first impact from the disease in 1933 and 1934 show what can be accomplished. In 1934, Larchmont lost 10 elms killed by the disease; Pelham, Pelham Manor and North Pelham lost 10 and the city of Mount Vernon lost 66. In the 15 years since 1933 the clean-up of recommended dead trees and wood has averaged 93, 86 and 90 per cent respectively. As a result of these precautions, Larchmont in 15 years has lost in elms killed by the disease a total of only four per cent of its elms. The three Pelham villages combined have lost five per cent and Mount Vernon six per cent. In other words, they still have 95 per cent of their elms.

Any city or village can obtain the same results if the local interest is directed at saving money by saving elms.

BLUE MOUNTAIN LAKE

Once known for the "ungainly pile of piazzas" on its shoreline, now perhaps the most beautiful of Adirondack lakes

BLUE MOUNTAIN LAKE, Hamilton County, has lifted a shadow cast on it by an historian and now boasts it is *the* lake remaining nearest to its natural state of any in New York.

Donaldson, whose pen was merciless, described Blue Mountain as a sister to Raquette Lake in beauty and proximity, and noted that development of the two went together, but with the great difference that Raquette was dominated by the camp beautiful idea whereas Blue succumbed structurally to the hotel horrible. "The gaunt, ungainly pile of piazzas and windows" that marked Blue's hotels on the outside has been transformed by modernization, and now the inward "refinements in comfort and convenience" they always contained are matched outwardly. Blue's few big camps have always been impressive and attractive; its other buildings have been comparable. The Blue Mountain Lake Association has seen to this and welcomes only structures that fit into the landscape.

Blue Mountain Lake is in the Raquette Watershed, on highway routes 10, 28, 28N and 365, and is serviced by two bus lines. (It once took a day by rail and steamer via Utica and Raquette Lake or by rail and stage via Saratoga and North Creek to get there). Blue's maximum depth is 102 feet, its average depth is 45 feet, its level is maintained by a 30-inch dam at the outlet of Utowana Lake, and it covers 1,312 acres. It's dotted by 25 islands which still have their original growth of timber.

It's a toss-up whether the bass or the lake trout is the main game fish. Excellent catches of brook trout also have been reported. Frost fish were once abundant but now are rare or extinct; there's no report of rainbows. Lake trout fishing improved after white fish were stocked but fell off after the introduction of bass. Brook trout fishing is good in the spring at the mouth of Minnow Pond outlet and white fish are moderately abundant, a few being taken at buoys.

Blue's chemistry is interesting. From a depth of 98 feet (or practically on the bottom) all the way up through its waters dissolved oxygen was found comparatively high; the lowest reading at 80 feet was 5.6 parts per million, well within the tolerable limit for fish life. Periodically and culminating last year there was some local desire to stock the lake with smelt but there is little evidence to indicate that fishing would be improved by such a program.

Test seining has brought up lake trout, bass, perch, brook trout, sculpin, two kinds of white fish, two kinds of sunfish, and suckers. The Indian Lake and Blue Mountain Fish and Game Club co-operates in stocking Blue with thousands of lake and brook trout annually.

Blue is not altogether for the rocking chair brigade and game fishers; local hunters will find some grouse, a few pheasants, rabbits, hares and squirrels, bear now and then—and plenty of deer in the woods. The vacationer will find Blue Mountain with its elevation of 3,759 feet spectacular if they climb the trail to the fire observation tower. On a clear day six or seven other fire towers and a panorama that's breath-taking can be viewed. The hike to Terrell Pond, locale of an early Irish immigrant settlement, is fun; if it's camping you want, there are the sites at Lake Eaton and Golden Beach at Raquette or, closer still, the new campsite at Lake Durant.

Blue Mountain Lake and its environs also has much to offer in the way of antiquity, much of it soon to be collected and displayed in the Adirondack Museum at Blue Mountain Lake village. Among the memorabilia will be the Adirondack pack-basket (August-September '48), the Adirondack guideboat (June-July '48), relics of the resort era symbolized by the old Prospect House (first hotel in the world to be lighted by electricity) and relics also of the three-quarter mile rail carry from Raquette to the Marion River and the steamship line through the Marion and Utowana and Eagle lakes into Blue Mountain Lake, abandoned in 1929

after a half century of operation.

Utowana, Eagle and Blue once were called the Eckford Chain after Henry Eckford, noted engineer and shipbuilder who made a State survey in 1811. Later Professor Emmons during his geological survey named them, beginning with the largest, Lake Janet, Lake Catherine and Lake Marion.

Emmons' names were so early that there was no one to perpetuate them and for a long time the chain of waters was called the Tallow Lakes. (A greedy old Indian overloaded his canoe with venison tallow and was overtaken on Blue Mountain Lake by a storm which upset his cargo of grease. The scene of the tragedy was referred to as Tallow Lake.) This was hardly acceptable on letterheads when the first hotel on the lake was built in 1874 by John G. Holland, so the proprietor renamed the lake after the adjacent mountain which the guides referred to as often being conspicuously tinged with blue.

Holland's Blue Mountain Lake Hotel burned in 1886, was rebuilt, but burned again in 1896 and never rose again. Holland found two permanent residents on the lake when he began to investigate the hotel possibilities there—Chauncey Hathorn, who was living a secluded life, and Tyler M. Merwin. The success of Holland's venture inspired Merwin to turn his cabin on the plateau into a hotel, still standing and known as the Blue Mountain House.

When Frederick C. Durant built the Prospect House in 1881 (it was razed in 1914) it was the largest and most luxurious in the woods. Its erection 30 miles from a railway was held a remarkable achievement. It had no outward beauty but contained 300 rooms, many baths and open fireplaces, a steam elevator, electric bells, bowling alley, shooting gallery, a billiard room and telegraph office, and each bedroom had an Edison electric light.

The large hotels on this lake have remained its most conspicuous man-made feature, yet even they are almost swallowed up by the natural beauty of the surroundings. Blue Mountain Lake is certainly one of the most beautiful, perhaps the most beautiful, of Adirondack waters. —ROLAND B. MILLER

YOU will be glad to hear that the North American continent is the native home of the sunfish family, a large group of spiny-rayed fishes known as *Centrarchidae*. The long Latin name is less important to the angler than more personal contact with members of this family, which includes the black bass, calico bass, rock bass and sunfishes. While any of these may be called a "sunfish" by persons primarily interested in classification, most anglers use this word in a more restricted meaning to designate the pumpkinseed, blue-gill and related species of similar type. There are, in New York, no less than seven species, ranging in size from the tiny ones virtually unknown by most anglers to the sturdy, familiar pan fish models.

Sunfish are well-named; they are brilliantly-colored, flashing fellows. Besides, they really seem to like the sun and are often to be seen in shallow, exposed shoals usually avoided by many of our more secretive fishes. It is in such places that they construct their nests—cleared places in the sand or gravel which the male fish energetically excavates and valiantly defends. This feature of the reproductive scheme proves to be highly successful, for there are plenty of sunfish, or even more than plenty if you consider the competition between hordes of hungry sunfish and young bass or other fish of greater value to man in his quest for sport or food. The tiny eggs of sunfish can be found sticking to the bottom of a nest, where the fry remain for a short period before scattering along the shore zone.

The principal species of sunfish of interest to New York anglers are the pumpkinseed, the blue-gill and the red-bellied sunfish. These three are much alike in general appearance and shape, as well as in fighting ability. Two of them are illustrated on the back cover, while the pumpkinseed appeared on the June-July, 1947 cover.

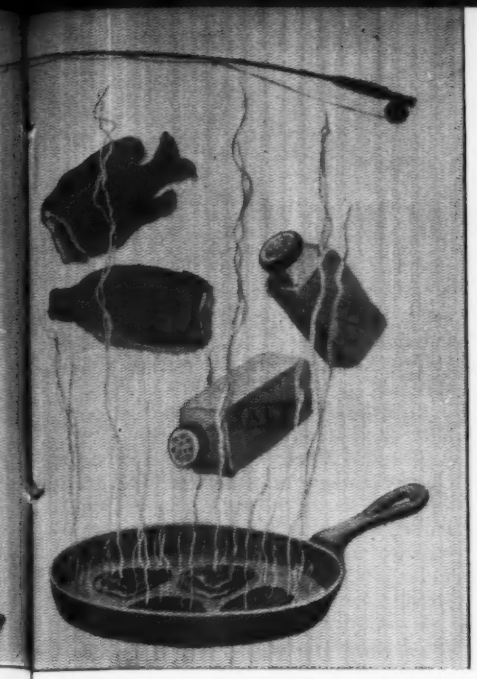
The pumpkinseed or common sunfish has a small red fleck on the tip of the ear flap, except when very young. Even if this mark is not noticed, it is a good bet that the sunfish caught at random in New York lakes or streams will be a member of this species—which is very common and widely distributed throughout the State. The quality of angling provided depends far more upon the local growth rate conditions than upon numbers, and too often it is the size and not the abundance which is disappointingly small. Warm lakes where there are plenty of predatory fish to "thin down" the numbers often produce sunfish as large as a man's hand. Such a pumpkinseed can battle ferociously, turning its flat side against the pull of the line and making every ounce of its weight count. But, although anything but a wary fish, the sunfish is not easy to catch because of its small mouth. Unless a small hook is used, meager results are secured in proportion to the antics of the cork or bobber, which in good "punkie" territory is likely to jiggle, stand on end and depart bottomward on short notice.

The blue-gill is a more dainty sunfish, with rather small mouth. Although it is capable of reaching a considerable size, even ten inches, few New York lakes produce the large fellows which provide so much enjoyment to anglers in the middle western states. Black Lake, Lake Champlain (South Bay) and a few other waters produce big ones, but in many lakes the size is below expectations and not materially better than that of the native pumpkinseed sunfish. Because of its reputation, the blue-gill has been rather extensively introduced. Its qualities are receiving further testing in the farm fish pond program as junior member of the large-mouth bass and blue-gill team.

THE red-bellied sunfish is not very well known although native and rather numerous in eastern and southern areas of the State. It is often confused with the blue-gill and is frequently referred to as the long-eared sunfish—an apt name but a confusing one, since there is another species called by this name in most of the books on fish. In New York waters the average size is not large, which is unfortunate as this fish is known as a hard biter in waters farther south where he grows to more impressive proportions. Bass fishermen in the upper Potomac, for example, occasionally have a smashing strike that would do credit to any black bass, yet when the fight is done one of these big sunfish appears.

The large mouth of the red-bellied sunfish enables it to take a good-sized lure. In swift water of streams such as the Delaware this species is likely to be encountered, for it likes stream conditions although equally at home in still waters.

Ichthyologists have long recognized that hybrids among sunfishes are rather



common in certain localities. In Chautauqua Lake, for example, hybrids between blue-gills and pumpkinseeds are very numerous, and identification of such hybrids is far from easy without careful comparison of specimens.

Fortunately, the utilization of the large resource of sunfish in New York waters is not dependent upon accurate identification by anglers, for no sunfish are protected either by size limit or closed season. The characteristic shape and appearance help even the least experienced of anglers to know these fish. No young bass would be so chunky, and besides, a bass would have the two dorsal fins divided by a deep notch—not the one continuous fin of the sunfish.

Lest the lack of protection of sunfish be viewed with alarm in some quarters, perhaps it is advisable to mention that much study has indicated the undesirability of restrictions on the capture of pan fish of this type. Size limits hinder the cropping and therefore the utilization of these resources; where, as often happens, the sunfish are numerous but small, it is far better to take plenty at four or five inches (even smaller if they can be utilized) than to set a six inch limit and wait for results that seldom materialize. Where needed, protection has a place in fish conservation. The fact remains that *protection will not grow fish.* Observations indicate that sunfish resources are not so generally subjected to heavy angling pressure as to need the help of special legislation; too few persons want to catch and dress for the table a string of these little pan fish.

The real significance of the underutilization of a resource of this type merits careful thought. On the land, the growing of desirable timber in wood lots would be far easier if the removal of competing crops of undesirable trees could be facilitated. In the waters, large poundages of undesirable fish tend to accumulate, and through competition tend to decrease the productive capacity for the better types of fish. Although it is hardly fair to the game little sunfish to say that he is a nuisance (and let it be said that there are many other fish far worse), it is a fact that large acreages of our finest game fish waters are overrun with them. That means poorer environment for the game fish.

This is a problem which should be carefully considered, in view of the great extent of the waters concerned. It is not a problem to be solved by picking up the telephone to request one of the Department's fish salvage and control netting crews. It is not one to be solved by a few anglers going intensively after sunfish. Even if every available angler were to be mobilized for the fray and long strings of sunfish were to be taken, the results would likely be too temporary to count.

Observations indicate that permanent, steady pressures are the only factors that really count for much in balancing fish populations. Fisheries biologists now recognize predation as a very necessary influence to combat the fast reproductive capacity of unutilized or undesirable fish. Bear in mind that overpopulation of such species as sunfish is not prevalent in waters where northern pike, wall-eyed pike or similar fisheaters are present in large enough sizes and sufficient numbers to "thin down" the prey species. It is reasonable, therefore, to conclude that the production of good fishing for sunfish or other "pan fish" as well as for game fish in the same waters, is dependent upon a naturally favorable fish population balance far more than upon any direct control by man. This has been frequently demonstrated in managed fish ponds. Perhaps the angler will not get as many bites per hour from the pan fish that escape if predatory fish are numerous, but those that do survive are likely to be large enough to be well worth catching. Fortunately these satisfactory conditions of population balance exist in many waters. Where they do not exist, there is an opportunity for management to restore these conditions —easier said than done, but a program in which progress is beginning to be made.

Here is an opportunity for the big game fish devotee and the pan fish angler to work together to advantage. Too often arbitrary standards are set up, the catching of big fish being a point of pride while the possessor of a string of minor pan fish must brave the scorn of his fellows. Jibes and jeers should not deflect the pan fisherman, for from a fish management standpoint the fellow who will catch and dress a mess of little fish may be helping to restore a fish population balance favorable to production of big fish as well as small.

As a general rule, any place where sunfish bite fast will not be damaged by the taking of large numbers. As we've said before, if you really go after the little fellows with light tackle it's plenty of fun, and even the chore of dressing them is not too bad with a little practice. Last but not least, a mess of sunfish in the pan, done to a golden brown, is a treat not to be missed, for they are as sweet as a nut and the sharp bones are very easy to avoid.

In preparing sunfish for the cook, most persons prefer to scale the fish. This should be done as soon as possible after catching, or else care should be taken to prevent the drying process which makes the scales so difficult to remove. Laying the fish on its side, a slanting cut can be made to remove the head, pectoral fins and belly fins and also the viscera. After washing and draining the fish are ready to cook, although some prefer to remove dorsal and anal fins by running a sharp knife along both sides of the fins and lifting out the structure. If this is done by pulling from the rear edge of the fin the hidden bones at the base will come out with it.

IT is true that big fish will always be more satisfactory than little ones from the raconteur's point of view. There will be no use telling your friends you had to battle your sunfish an hour to land it. Instead, get your friends to go with you and observe operations at first hand, right down to scaling, dressing and eating a fair share of the catch. The catch itself is easily come by. Small artificial flies and tiny spinners work very well, although the old-fashioned angle-worm on a small hook is still the most reliable prescription. In any case, the successful sun fisherman is defined as anyone who can move quickly enough to pull up when the fish pulls down.

One of the good points about this brand of angling is the realization that you're not depleting the resource; tomorrow's sunfish will shine just as bright, maybe brighter.

—JOHN R. GREELEY,
Senior Aquatic Biologist

Rensselaer County

THE 17th of September, 1609, was clear and hot, the kind of an early autumn day that only New York produces. On this day the little ship Half Moon, sailing up the Hudson River on its voyage of discovery, ran aground on a sandbar somewhere above the present site of Castleton. Such was the first contact white men had with the interesting segment of our State which subsequently became Rensselaer County. A varied terrain, there can be found within its 651 square miles many different physical features and floral types.

Rensselaer County lies on the east side of the Hudson, which is here a tidal estuary with only a thread of flood plain, islands and cattail swamps. Beyond, the land rises sharply to the level of the broad valley which comprises the western half of the county. East of this is the Grit Plateau, the most conspicuous feature of the landscape. It lies "like a turtle on a beach" upon the surrounding lowlands, from which it mounts abruptly to elevations of 1,800-2,200 feet. This is the geologically famous Greywacke of Rensselaer, a flat-topped but exceedingly rough and rugged mountain of quartz-infiltered sandstone. Back of the Plateau is the deep and narrow Berlin Valley, and beyond, the western Berkshires.

The flood plain and islands of the river, alluvial land close to tide level, are very fertile and enjoy a long growing season. Their plants represent a north-extended finger of Coastal Plain flora and their affinities are distinctly southern. Forests are of willow, elm, silver maple and cottonwood.

From the Hudson terraces east to the foot of the mountain the land is level or rolling, the soils gravel or clay. This is a farming section and much of the land is cleared. Woodlots grow white pine, red and white oak; pine is often of superior quality and size.

The Plateau is quite different. The glacier scraped off or washed off much of its soil, leaving the land too rough and rocky for successful agriculture. What soil remains is stony, acid, high in organic matter. Much of it is mapped as "rough, stony ground". The Plateau's steep western slope faces the prevailing wind which pushes advancing air masses up a thousand feet in only a couple of miles. The resultant cooling shakes out a lot of extra rain, keeps soil and atmospheric moisture up and temperatures down. The forest is definitely northern, with red spruce, balsam fir, hemlock and northern hardwoods. Here is the largest body of spruce timber in New York south of the Adirondacks. Paper birch, white ash and red oak are of superior vigor and quality, maple about average, yellow birch poor. Planted larch grows phenomenally.

The Plateau has always operated on a forest economy. Besides sawlogs, the old-timers cut great quantities of hardwood and burned it into charcoal. This went first to the iron furnace at Copake, and lately has been sold locally for domestic use. Only a few of the charcoal-burners still work at the trade, but the old pit-floors are still to be found. In spite of heavy and repeated cutting, there remains a considerable amount of big timber and the second growth is mostly of good composition and quality. An interesting and profitable endeavor is the picking of ferns for the florists.

Because of the rapid growth, high quality and variety of its forest resources and its nearness to the great industrial areas of western Massachusetts and the Hudson-Mohawk Valley, this hill country is a superior timber-growing chance. The Berlin Valley is hardly more than a thread of farmland between two forested mountains. Eastward, the slopes which run up to the Berkshire peaks are mostly forested with hardwood and hemlock.

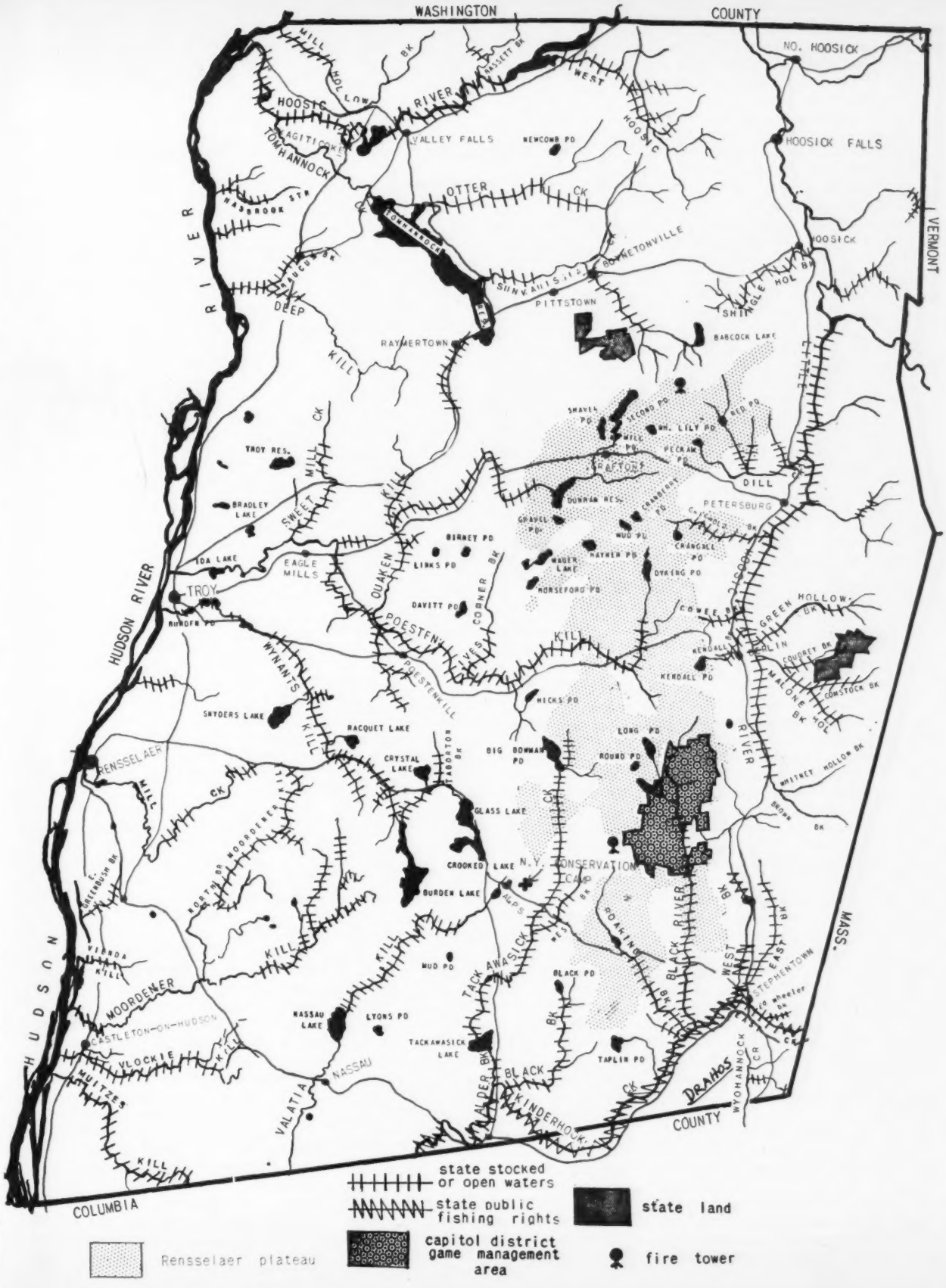
The county is blessed with an abundance of good water. Many streams originate in the Berkshires or on the Plateau; others start in the Hudson valley. A few flow north into the Hoosic, others flow westward directly into the Hudson. Except where obstructed by dams, these are fast, cold streams flowing on beds of boulders or gravel. Practically all contain brook, brown or rainbow trout; some of them bear names famous among fishermen. The biggest is Kinderhook Creek, which drains the south part of the county. On it, the Civilian Conservation Corps did one of its most extensive and effective jobs of stream development. In recent years, the stream has been plagued by floods —1938, 1945, 1948—but still bears up under heavy fishing pressure not only from Capital District fishermen but also from numerous non-residents. Other good streams are the Little Hoosic, the Poesten Kill, the Moordener Kill. The Hoosic River is warm water, a pan fish stream.

Because of its beauty, the Hudson River has been called "the Rhine of America". Where it passes Rensselaer County it might more accurately be described as one of the world's finest open sewers, for it is polluted with a startling variety of industrial and domestic wastes. Truly, here is one of the county's most pressing conservation problems.

The Hudson Valley is a minor flyway for waterfowl, which during migration frequent the bigger lakes and the river marshes in considerable numbers. For the past two years, the Department has operated a duck trapping and banding station on Tomhannock Reservoir. In ancient days, pass-shooting was a popular sport along the river, the gunners taking station on certain favored points and banging away with long-barreled, full-choke 10 gauge guns at every passing quacker.

A NUMBER of lakes dot the landscape. West of the foot of the mountain is a string of lakes that occupy ice-block holes left when masses of glacial ice buried in the gravel plain melted out: Tomhannock, Crystal, Glass, Crooked, Burden, Nassau and Tackawasick. These are relatively warm and shallow, but afford good fishing for pickerel, bass, wall-eyes and pan fish. On hot days in summer, bathers usually outnumber the fish. On top of the Plateau are numerous small, cold lakes dug out of the rock by irregular glacial erosion, the home of trout, chain pickerel and bullheads. Scattered over valley and mountain are many potholes and swamps that are—or with a little effort could be—good places for muskrats. And this is in that favored strip of New York which produces those prize muskrat pelts that go into the making of Hudson Seal.

Rensselaer has plenty of good game range, too. Because of the diversity of cover types and the activity of the woodchoppers, it has always been superior ruffed grouse cover. Many a gunner's pulse has been quickened by the whirr of beating wings, and many a charge of birdshot has been slammed into some stout Rensselaer beech tree. The valley is open land, the home of cottontail


WASHINGTON COUNTY
NO. HOOSICK
HOOSICK FALLS
HOOSICK
VERMONT
HOOSIC RIVER
WEST HOOSIC
MILL HOLLOW BK
MASSETT BK
HOOSIC
TAGHTICOKE
VALLEY FALLS
NEWCOMB PD
TOWNSHANNOCK
OTTER CK
HASBROOK STA
HASBROOK
BOMETONVILLE
SUNWAIS
PITTSTOWN
SHINGLE HOL BK
DEEP KILL
RAYMERTOWN
BABCOCK LAKE
TROY RES.
TROY
BRADLEY LAKE
SWEET MILL CK
IDA LAKE
EAGLE MILLS
HUDSON RIVER
QUAKEN KILL
BIRKET PD
LINKS PD
DAVITT PD
RUNDER PD
POESTENKILL
POESTENKILL
WYNANTS KILL
SNYDERS LAKE
RACQUET LAKE
CRYSTAL LAKE
TABORTON BK
BIG BOWMAN PD
GLASS LAKE
CROOKED LAKE
BURDEN LAKE
RENSSELAER
MILL CK
NORTH OR MOORDENER KILL
MOORDENER KILL
VIENDA KILL
CASTLETON-ON-HUDSON
VLOCKIE KILL
MUITZES KILL
KILL
NASSAU LAKE
LYONS PD
NASSAU
VALATIA KILL
MUD PD
TACKAWASICK LAKE
TACKAWASICK BK
ALDER BK
BLACK CK
KINDERHOOK
COLUMBIA COUNTY
DRAHOS
WYOMANOCK CR
BLACK PD
TAPLIN PD
BLACK RIVER
WEST BK
EAST BK
STEPHENTOWN
N.Y. CONSERVATION CAMP
ALPS
ROARING BK
ROUND PD
LONG PD
BIG
RIVER
WHITNEY HOLLOW BK
OKONA BK
COMSTOCK BK
MALONE BK HOL
GREEN HOLLOW BK
COWEE BK
KENDALL PD
KENDALL
COMSTOCK
COOPER BK
CRANGLE PD
DYKENS PD
WAGER LAKE
NATHER PD
HORSEFORD PD
HICKS PD
GRAVEL PD
MUD PD
CRANBERRY PD
DUNHAM RES.
PETERSBURG
DILL
GRAFTON
SHAVER PD
SECOND PD
WH. LILY PD
RED PD
WILLIS PD
PECKAM PD
CAMPBELL BK
CAMPBELL
state stocked or open waters
state public fishing rights
capitol district game management area
Rensselaer plateau
state land
fire tower

and pheasant. The orchards and potholes of Schodack used to be especially good bird hunting. There were also a few of those big European hares, but they have been pretty well shot down. In the evergreen forests of the Plateau, snowshoe hares were formerly so abundant that they were hunted for market, and even now they provide fair sport. For deer, Rensselaer is a rifle county. Although the whitetails range everywhere—even into the cities—the legal take is surprisingly and consistently small.

The County has just organized a Soil Conservation District, for which the need has long been both apparent and acute. Careless farming over the span of two centuries has taken a terrible toll of soil and water resources. The light sands of the lower Hoosic valley, the friable loams of the rolling country and the clays of Schodack all require skillful handling. Flood damage is nothing new. Even when the country was virgin, one of the early forts on an island in the Hudson was washed away by a spring freshet. But the floods of the past decade have been especially hurtful. The County badly needs an ecologically sound and economically realistic overall plan for soil conservation and flood control. The formation of a Soil Conservation District is a mighty stride in the right direction.

Except in certain sections, Rensselaer County never had much of an abandoned land problem. The good farming lands were good enough to support their population; the poor lands in the valley have been close enough to the cities so that they passed directly from farm to suburban real estate. On the mountain, farming never amounted to much anyway, timber growth was aggressive, and the forest followed the departing farmer step by step. Very little land ever changed hands at four dollars per acre because there was always wood enough to make it worth more than that. As a result, there is but little public land under the jurisdiction of the Conservation Department. Two State Forests, one south of Boyntonville and one up Barber Hollow, east of Berlin, have an aggregate acreage of only 1,290. On top of the mountain, at the headwaters of Black River, is the Capital District Game Management Area, with its man-made lake, its trout water, its deer and hare hunting and its excellent timber.

Among many things, Rensselaer County produces one thing superbly. With a rugged and mountainous terrain, broad vistas and a diverse forest cover, her display of autumn colors is magnificent. It's a little late now, but bear it in mind for next fall.

—Dave Cook, *Supervising Forester*

MRS. RICHARDS'

Report on Keeping Beavers in Captivity on Scientific Collector's License No. 1039

by Mrs. A. M. Richards

In November, 1943, upon receiving a license from the New York State Conservation Department, we transferred a three-month-old beaver and a six-month-old one from the pond to our cellar. Each beaver had a different mother and we hoped they were of different sexes. I selected them from two different families and, knowing them all individually, I was reasonably sure of their sexes. All reproductive organs being inside the body we had no way of knowing we had a pair who would mate.

One end of the cellar had no concrete floor. We piped water into this end and while the animals were still small a washtub sunk in the dirt floor satisfied them. As we had no drain except an electric sump pump we did not leave the water turned on but emptied the tub as often as necessary. All excrement was deposited in the tub and so frequent changing of the water was necessary. The writer got up once and sometimes twice in the night to do this. The beavers soon outgrew their tub and while we were deciding what to do next they took matters into their own hands and started digging out around the tub. As soon as they were large enough they emptied the tub and rolled it out of their way into the other part of the cellar.

They quickly adapted themselves to their unnatural surroundings and appeared delighted with the challenge of creating their own environment. We often found them playing and they seemed to enjoy their work of digging and remodeling their house.

They continued digging at intervals for the next year and a half. In the meantime they went to work on their house. We had provided a house made of boards. They piled stones inside to enable them to reach the ceiling. One ceiling board was chewed out at one end and dropped down, making a ramp that enabled them to reach the top. They proceeded to remove much of the roof and siding and rebuilt, using sticks and soil and stones.

We provided poplar, willow, dogwood and birch branches and gave them apples as a special treat. They ate the bark from the branches and used the peeled sticks in the construction of their house. The next summer we of course provided boughs of green leaves which replaced the bark. They ate very little bark in the summer, preferring poplar leaves. We found they were fond of many other green leaves and flowers such as wild roses and red clover.

Both beavers remained healthy and grew more than those at the natural pond. After about a year we found they were digging under the bottom of the foundation of our cellar, following a vein of water leading out into a swampy low spot about 20 feet out from our house. All the dirt and stones were brought into the cellar and we carried them out from there.

In early March, 1945, when they were approximately two years old we had a heavy thaw. It turned very warm in the night and one morning when I arose I found an opening through the snow in our side yard with tracks leading away. I was just in time to see the older beaver diving into the creek by our home. We never saw her again. The thaw disclosed the fact that the beavers had tunneled all the way out from under the foundation of our house, a distance of at least 15 feet and then up to the surface in a low swampy spot. The smaller, younger beaver (the male) had not attempted to escape.

In spite of searching and calling and setting a Bailey trap we were unable to recover the lost beaver.

While still attempting to recover the lost beaver we found a strange yearling beaver sitting in our Bailey trap one morning. We carried trap and all into the cellar to see if our lone beaver would express an opinion as to whether or not he would like the stranger in place of his lost companion. He tried to bite the yearling through the cage so we took him out and released him. We realized our beaver was lonely, so brought in a yearling female from the wild colony. Our beaver showed his approval plainly and we released her in the cellar. The male became very fond of her at once but she did not like captivity and escaped.

My husband and I then proceeded to have built in the end of our cellar,

BEAVERS

where the beavers had dug their pond, a large concrete tank. This we had built about 4½ x 11 feet with an extra 20 feet of swimming space provided by a 20 inch diameter pipe from the bottom of their tank through the cellar wall. This pipe slopes up to the surface with an air space at the end covered with large rocks to simulate their underground burrows in the wild. This proved to be a fortunate arrangement, as they enjoy and use it constantly.

We had water piped in from the creek. It runs continuously by gravity.

In October, 1945, I selected what I thought was a female from the litter born at the wild pond in May and brought her in for a mate for the other one. She was five months old. She was accepted but our male was not very much interested at first, due perhaps to her youth. Soon, however, he took it upon himself to show her around and they rapidly became very devoted.

When this second female was a few days less than one year old, in May, 1946, she gave birth to one kitten who seemed to be doing well at first but who only lived 12 days. It weighed a little more than one pound when born and gained about two ounces a day until the day before it died. We had an autopsy performed and found it had contracted virus pneumonia. Our doctor said it undoubtedly got the germ from a human being.

The mother was not half grown but she realized what had happened and mourned so that we were worried about her health. She continued to eat and in a few days was all right again. The following year she had no young. In March, 1948, she gave birth to two young. One was born three hours after the first one and never was seen nursing. It lived only eight days. The other was unusually large and strong and at the age of seven months weighed 33 pounds and 38 pounds at one year.

The father beaver continued to grow and gain weight until four years of age. His weight at five years was 53 pounds.

In April, 1949, the mother beaver gave birth to four kittens. One was deformed and weak and lived only five days. The other three are normal, healthy and lively and with the yearling and the parents make six beavers now in captivity and living in peace and harmony so far.

The parents have built numerous houses, using sticks from which they have eaten the bark for the structural work and coal and shredded up wood for filling in the small open spaces. All three older ones come upstairs and the young ones attempt it.

This summer we completed a project long dreamed of—a large artificial pond. The six beavers were moved into this on August 9th. We provided a fence seven feet high and buried two feet in the ground. The pond has a good flow of clean creek water and is over 100 feet long and over 50 feet wide. The beavers, so far, have dammed the spillway every night, causing us to remove all the debris each morning. We provided a temporary house made of boards and plastered with mud. As I write this (August 15th) they have used a lot of brush we provided to pack around the house we built instead of building a new house. They are happy over their new home and all the work they see ahead of them.

Their coats are softer and more lustrous than those at the wild pond and we have succeeded in keeping them healthy and in prime condition. All are playful, interesting and individual. Their intelligence surpasses anything I have ever found in the animal world and although it is a tremendous task to take care of them I consider it well worth while because of their human-like ways and reactions.

The fine report of Mrs. Richards concerning her experiences with the raising of beavers in confinement may be the means of interesting some of our readers in undertaking a like experiment. I therefore feel that I should point out that there is very little likelihood of the Department acting favorably upon any additional applications made to it to undertake any such project, whether with beavers or other animals.

The license under which Mrs. Richards is carrying on her work is one issued only to duly chartered museums, societies incorporated for scientific, educational and exhibition purposes, and only occasionally to others who have scientific background and training of a nature which suggests they are equipped to make some real tangible contribution to the science of mammalogy.

So unless you are a scientist, please refrain from requesting a license like the one held by Mrs. Richards.

—Justin T. Mahoney, *Director, Division of Fish and Game*

Deer: New York's Billion-Dollar Asset

ON its herds of whitetail deer, New York State now puts an amazing price tag—$1,114,375,000 measured in terms of what the resource means to business. The recreational value? Immeasurable.

Curious to see how the vast army of 377,819 licensed Empire State deer hunters spent their money in 1948, THE CONSERVATIONIST asked by detailed questionnaire an adequate sample of them picked on a fair, representative basis from more than 150 city and country post offices in every region. Signatures were not required. The result: $117.98 average per man, 18% higher than the accepted national estimate by wildlife economists.

The year's total cost: $44,575,000. Capitalized at 4%, the worth of New York's deer asset soars well beyond $1 billion.

Minimum individual return on the questionnaire was $6.60, spent by a licensee who travelled five miles in his car (7¢ per mile—standard allowance to cover gas, oil, tires and depreciation) to buy his $1.25 license. The depreciation on his $50 gun was $5 (based on its 10 years' use). Then he didn't even go hunting. Eleven per cent of the hunters spent under $25. Fifteen per cent had negligible or no transportation costs.

Top outlay—$736.75: representing depreciation on equipment, rifle and ammo $16.50; license $1.25; new clothes $190; camp gear, sleeping bag, etc. $110; food $224; lodging $90; guide $35; pocket accessories $7.50; butcher for deer $3; taxidermist $27.50; meat storage $4, and travel (400 miles @ 7¢) $28. Also included—$29.20 for tire and chains, an expense we did not allow because the 7¢ mileage allowance was figured as adequate overall coverage.

Another typical high bracket breakdown: Total $428.75: new rifle and ammo $109.04; license $1.25; clothing $150.20; accessories $25; food $30; lodging $47; liquor $8 (above what normally might be spent); transportation $58.80.

Surprisingly, the average cash outlay or depreciation costs for arms, ammunition, gun case, scope and accessories topped all group expenses (see column

Facts and figures indicate that proper management of our deer herd pays off in dollars and cents—as well as in recreational values

at right) with clothing, food, transportation, camp equipment and lodging expenses in that order.

Business can lift an eyebrow and rejoice at the *total* expense figures:

Arms, ammunition, gun cases, etc. (new guns 46% of total, ammo 11%, depreciation & gear 43%) $11,433,000; clothing $7,020,000; food $5,777,000; transportation (automobile business got 99½%) $5,648,000; camping equipment $5,165,000; lodging $3,586,000; liquor and beer (above normal home use) $1,507,000; hobby (camera, films, etc.) $1,326,000; accessories (pocket gear, compass, knife, tobacco, etc.) $1,190,000; deer products (taxidermist, gloves, butcher, storage, etc.) $971,000; guide (also club and landowner fees) $480,000; and license $472,000.

To help keep figures on a conservative basis, no questionnaires were sent the 5,907 non-residents who hunted New York deer and whose expenses normally are considered 50% greater than residents.

The tangible cost per deer actually taken (37,683 deer in 1948) necessarily was high. The intangible return in terms of relaxation, exercise and just plain fun? The heart of each hunter alone can tell.

Is it important—the management of a billion-dollar business asset in order to maintain an adequate annual return?

More important than you may have dreamed. —STAFF

EXPENSES OF AVERAGE 1948 N.Y. DEER HUNTER

1. **FOOD, LODGING & GUIDE** $26.05
   Camp supplies or board ($15.29), lodging ($9.49), guide, fees ($1.27).

2. **LIQUOR & BEER** ..... $ 3.99
   Above normal expenditures.

3. **CAMPING EQUIPMENT** $13.67
   Picnic outfit, bedding, axe, tent, lantern, first aid kit, etc.

4. **TRANSPORTATION** $14.95
   Gas, oil, tires, chains, depreciation on car. Computed at 7c per mile travelled. (Bus, rail, plane fare 9c per man).

5. **HOBBY** ..... $ 3.51
   Camera and film, field glasses, etc.

6. **LICENSE** ..... $ 1.25
   Special 1948 resident deer license.

7. **FIREARMS** $30.26
   Rifle or shotgun, ammunition, scope, case, cleaning rod, etc. New or depreciation costs.

8. **ACCESSORIES** ..... $ 3.15
   Carried by hunter; map, compass, whetstone, matchbox, whistle, tobacco, laces, knife, dragging rope, etc.

9. **CLOTHING** $18.58
   Everything carried in personal duffle bag.

10. **DEER PRODUCTS** ..... $ 2.57
    All expenses after deer has been killed; taxidermy, tanning, gloves, butchering, storage, etc. (pro rata expenses for 37,683 deer).

TOTAL PER HUNTER...$117.98

Deer

Hunting Possibilities in New York

DISTRIBUTION OF HUNTERS *as indicated by* DEER RANGE LEGAL KILL in 1946

FOR each year since the special deer license was established in 1927, this Department has published in its annual reports the number of deer reported taken in each county. These figures have often been taken at their face value to indicate the relative quality of deer hunting in various sections of the State. Yet, in actuality, a number of other factors, which differ from county to county, also contribute strongly to hunting success. The average deer hunter knows that where there are a large number of hunters afield the deer are constantly on the move and the chances for a shot are high; he knows that, other things being equal, the amount of deer range in a county will make a difference in the number taken; he also knows that the relative abundance of the deer themselves makes a big difference but that, even with a high deer population, there must be hunters there to take them.

Information on the area of deer range and the distribution of hunters in the field has recently been compiled under the Department's deer research project. By taking these factors into consideration, together with records of the legal kill, a more complete picture of deer hunting possibilities throughout the State is now available for the first time. Because data on hunter numbers and distribution have as yet been tabulated only for 1946, the following analysis was made specifically for that year. Nevertheless, the general relationships revealed should still apply during seasons when only antlered deer may be taken and all or most of the counties of the State are open.

As has been indicated, three primary types of information were used: (1) the number of deer licensees who hunted in each county, (2) the estimated area of probable deer range in each county, (3) the reported legal take of antlered deer for each county.

The number of deer licensees hunting in each county was derived by tabulating answers to the question, "In what county do you intend to hunt?", which was included on the license stub. The figures are considered to represent the distribution of hunters in the field. Estimates of the amount of deer range for each county were based primarily on data contained in the Federal Agricultural Census for 1940. Figures for the reported legal take of antlered deer were taken from the annual report of the Department for 1946. In New York it is mandatory that the successful deer hunter return half of his special license giving certain information regarding the deer he killed. It is known, however, that these returns are not complete, even for legally taken deer. Therefore, the totals are conservative.

The figures, by county, for the three types of information considered are listed in the facing table. Also in this table are given the results of the following comparisons derived from them.

1. Number of hunters per deer taken
2. Number of deer taken per square mile of range
3. Number of hunters per square mile of range

In this table the counties are arranged in alphabetical order. But to facilitate visualizing the relative rank of the various counties with respect to the three comparisons made, the data have been graphed on page 24 to show the progression from the highest to the lowest county in each case.

The number of hunters per antlered deer reported taken varied from 52.8 in Oneida County to 9.5 in Schuyler County. The State average for the year was 17.2. On this graph Tompkins County (18.9) is the midpoint. The counties from Oneida down to about the midpoint of the graph have a rather poor reported deer take per hunter. In the rest of the counties hunting success is average to good. A majority of the Adirondack and western counties (nine out of 14 and 14 out of 25, respectively) were above midpoint, while most of the Catskill counties (11 out of 14) were below.

With respect to the number of deer taken per square mile of deer range (Figure 2), Putnam County had a reported harvest (1.79) greater than any other county. In contrast Jefferson County had the poorest harvest (0.09). Considering the various regions of the State, all of the Adirondack counties had a harvest per square mile below the midpoint of this graph. The majority of the Catskill and western counties were above the midpoint. In general the successful hunter in the western and Catskill regions hunted over a smaller area to get his deer than did the successful Adirondack hunter.

Figure 3 shows the concentration of hunters per square mile of probable deer range. The heaviest pressure was in Monroe County where there were slightly more than 25 hunters per square mile. Jefferson County was at the other extreme with a density of only 3.3. The general distribution of the counties of the various regions was somewhat similar to that shown in Figure 2. All of the Adirondack counties had hunter concentrations below the midpoint of the graph (9.6). The majority of the Catskill and western counties were above this midpoint. Individuals who hunted in those counties having densities above the midpoint encountered many more hunters during their days afield than those who hunted in other counties.

REGARDING the data themselves, it is recognized that in many respects they are not precise. There can be little doubt that many hunters did not state correctly where they intended to hunt and that others changed their plans after buying their licenses. As has been mentioned, it is known that the number of deer reported taken is conservative. Nevertheless, the data are considered representative, relatively, and certainly constitute the first definite information of this kind that has been compiled for New York.

From the comparisons presented in Table 1 and illustrated graphically in Figures 1, 2 and 3, it is evident that the ordinary conception of a rather uniform hunting pressure and hunter success ratio is a fallacy. Actually, wide variations exist.

There is another factor which should be pointed out but which has not been used in the analyses. This is the fact that in the three regions of the State the open season was of different duration. In the Southern Tier and western counties the season was only six days long; in the Catskill region it was 16 days; in the Adirondacks it extended

COMPARATIVE DEER HUNTING SUCCESS IN THE VARIOUS COUNTIES OF NEW YORK STATE

COUNTY	BASIC DATA			COMPARISONS		
	Number of deer hunters	Amount of deer range*	Number of deer taken	Number of hunters per deer taken	Number of deer taken per square mile of range	Number of hunters per square mile of range
Albany	1135.5 †	178.9	78	14.6	0.44	6.34
Allegany	9684.5	668.7	893	10.8	1.34	14.48
Broome	4969.5	399.3	184	27.0	0.46	12.44
Cattaraugus	10981.5	871.2	692	15.9	0.79	12.61
Cayuga	2033	278.4	57	35.7	0.20	7.30
Chautauqua	7607.5	597.4	427	17.8	0.71	12.73
Chemung	4628.5	237.2	201	23.0	0.85	19.51
Chenango	3205	543.8	196	16.4	0.36	5.89
Clinton	2933.5	763.5	85	34.5	0.11	3.84
Columbia	3440	355.4	228	15.1	0.64	9.67
Cortland	2680	282.7	121	22.1	0.43	9.48
Delaware	9274	1002.0	505	18.4	0.50	9.25
Dutchess	4954.5	509.5	262	18.9	0.51	9.72
Erie	8994	498.0	288	31.2	0.58	18.06
Essex	9366	1669.1	650	14.4	0.39	5.61
Franklin	7110.5	1434.5	717	9.9	0.50	4.96
Fulton	3331.5	382.8	72	46.3	0.19	8.70
Genesee	2483.5	186.6	110	22.6	0.59	13.31
Greene	5833	500.1	407	14.3	0.81	11.66
Hamilton	11696.5	1734.4	871	13.4	0.50	6.74
Herkimer	10184	1119.1	515	19.8	0.46	9.10
Jefferson	2103.5	637.4	58	36.3	0.09	3.30
Lewis	7258.5	1001.1	351	20.7	0.35	7.25
Livingston	4255.5	256.4	293	14.5	1.14	16.60
Madison	1927	311.0	102	18.9	0.33	6.20
Monroe	5653	223.1	112	50.5	0.50	25.34
Niagara	2593.5	120.7	70	37.1	0.58	21.49
Oneida	6022	613.0	114	52.8	0.19	9.82
Onondaga	2308.5	295.3	66	35.0	0.22	7.82
Ontario	3341	259.1	222	15.0	0.86	12.89
Orange	5486	479.3	371	14.8	0.77	11.44
Orleans	2061	126.7	106	19.4	0.84	16.27
Oswego	5258	617.7	128	41.1	0.21	8.51
Otsego	5091	530.5	292	17.4	0.55	9.60
Putnam	3219.5	133.5	239	13.5	1.79	24.11
Rensselaer	2970.5	383.6	122	24.3	0.32	7.74
Rockland	2195	145.5	118	18.6	0.81	15.09
St. Lawrence	11902.5	2034.5	783	15.2	0.38	5.85
Saratoga	4422	558.7	96	46.1	0.17	7.91
Schenectady	749	104.5	37	20.2	0.35	7.17
Schoharie	4270	315.7	247	17.3	0.78	13.53
Schuyler	1489	190.5	157	9.5	0.82	7.82
Seneca	1291	111.9	42	30.7	0.38	11.54
Steuben	10690	775.4	920	11.6	1.19	13.79
Sullivan	9660.5	785.2	968	10.0	1.23	12.30
Tioga	2380.5	281.1	211	11.3	0.75	8.47
Tompkins	2913.5	258.8	154	18.9	0.60	11.26
Ulster	6958	911.3	495	14.1	0.54	7.63
Warren	6072	809.8	272	22.3	0.34	7.50
Washington	3350.5	404.3	193	17.4	0.48	8.29
Wayne	1705	208.6	63	27.1	0.30	8.17
Wyoming	6253.5	250.5	257	24.3	1.03	24.96
Yates	2506	141.7	158	15.9	1.12	17.69
Total	264883	28459	15376	17.2	0.54	9.30

* In square miles.
† "Half-a-hunter" values in this column result from the use of a part-score system where a person stated he intended to hunt in more than one county.

for 32 days. Thus, for counties of similar size and having the same total number of hunters, the one having the shorter season would probably have had greater concentrations of hunters in the field at the same time. Accordingly, hunting pressure from this standpoint was generally greatest in the western part of the State and lowest in the Adirondacks.

The hunter distribution that existed in 1946 probably did not produce a harvest of antlered deer in keeping with the best management of the herd in many localities. In some counties there were too many hunters for the number of deer or for the huntable area. In others there were probably too few hunters to cover adequately the huntable area, and therefore the crop was inadequately harvested. Somewhere between these conditions there lies the ideal situation for New York conditions.

It seems evident that in Putnam, Allegany, Sullivan, Steuben, Livingston, Yates and Wyoming counties both the hunting pressure and the take of deer per square mile were heavy. Hunting pressures in excess of 15 hunters per square mile of deer range are probably too heavy, yet this condition existed in Monroe, Wyoming, Putnam, Niagara, Chemung, Erie, Yates, Livingston, Orleans and Rockland counties. In the western region of the State and possibly in the Catskills it is probable that, where hunting pressures equal or exceed 10 hunters per square mile of deer range, as many bucks are harvested as should be and still leave an adequate number for breeding. In 1946 there were 23 counties with such a hunting pressure—17 in the western region and six in the Catskills.

At the other end of the scale were

Clinton and Jefferson counties where both the number of deer hunters and of deer taken per unit of area were small. Similar conditions occurred in Cayuga, Fulton, Oneida, Onondaga, Oswego and Saratoga counties. Of interest also is the fact that in Erie, Monroe and Niagara counties the number of deer taken per square mile was comparatively low in relation to the density of hunters present.

Comparing hunting pressure with hunting success, it appears that in Oneida, Monroe, Fulton, Saratoga, Oswego, Niagara, Jefferson, Cayuga, Onondaga, Clinton, Erie, and Seneca counties, there were too many hunters in relation to the available hunting territory and the number of deer present. This is indicated by the high average number of hunters per deer taken. A large number of those who hunt in these counties could hunt elsewhere and in doing so would probably have better hunting success. They would probably find, on the average, better hunting if they went to such counties as Franklin, Essex, St. Lawrence, Albany, Hamilton, Ulster, Schuyler, or Tioga.

Counties with about average hunting conditions (although they vary considerably) are those falling approximately in the center of the three graphs. There are 23 such counties in which the hunting pressure, hunter success and the deer take per square mile of range in 1946 represented about average hunting conditions. These counties were Broome, Cattaraugus, Chautauqua, Chenango, Columbia, Cortland, Delaware, Dutchess, Genesee, Greene, Herkimer, Lewis, Madison, Ontario, Orange, Otsego, Rensselaer, Schenectady, Schoharie, Tompkins, Warren, Washington and Wayne.

If there were a more nearly equal distribution of hunting pressure over the State, it is quite probable that the picture of hunting success and the distribution of the deer taken would be considerably changed. In this respect a shift in the distribution of hunters from those counties with a hunter concentration greater than 15 per square mile to almost any of the central Adirondack counties would probably be desirable from a management point of view. In addition, if the open seasons in the Catskill and western counties could be held simultaneously, it would help equalize the pressure. It is entirely possible that the short open season in the western region causes an undue concentration of hunters in these counties and that this concentration might be reduced if the season were two weeks long.

—C. W. Severinghaus,
Game Research Investigator

FIG. 1: NUMBER OF HUNTERS PER DEER TAKEN

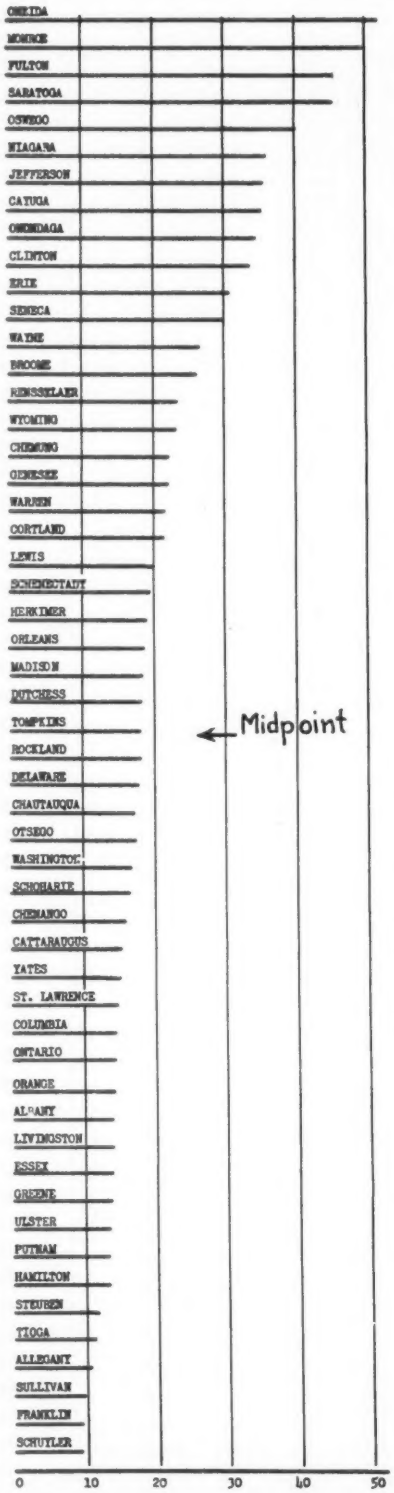


FIG. 2: NUMBER OF DEER TAKEN PER SQUARE MILE OF RANGE

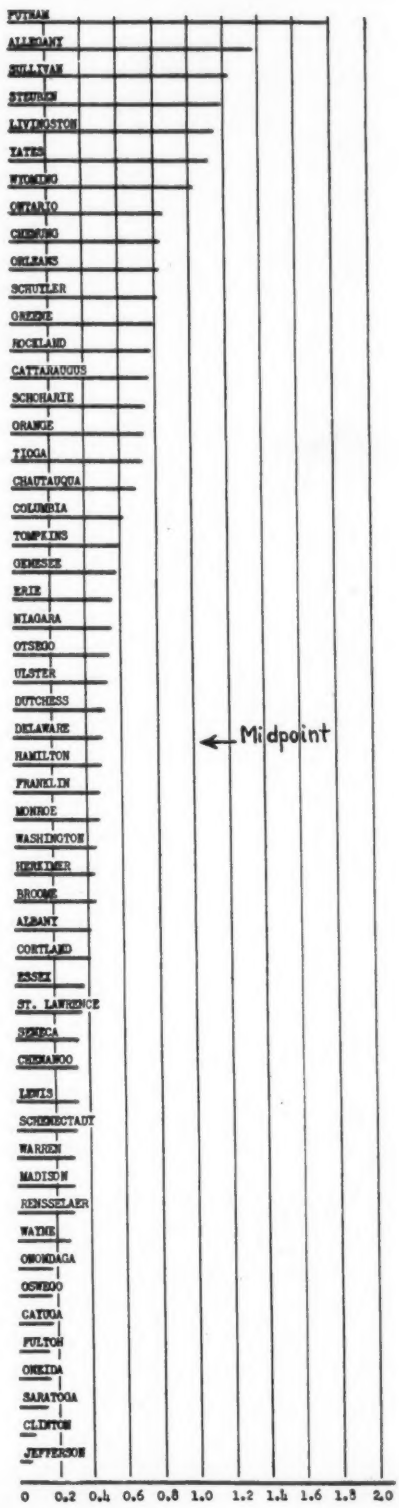
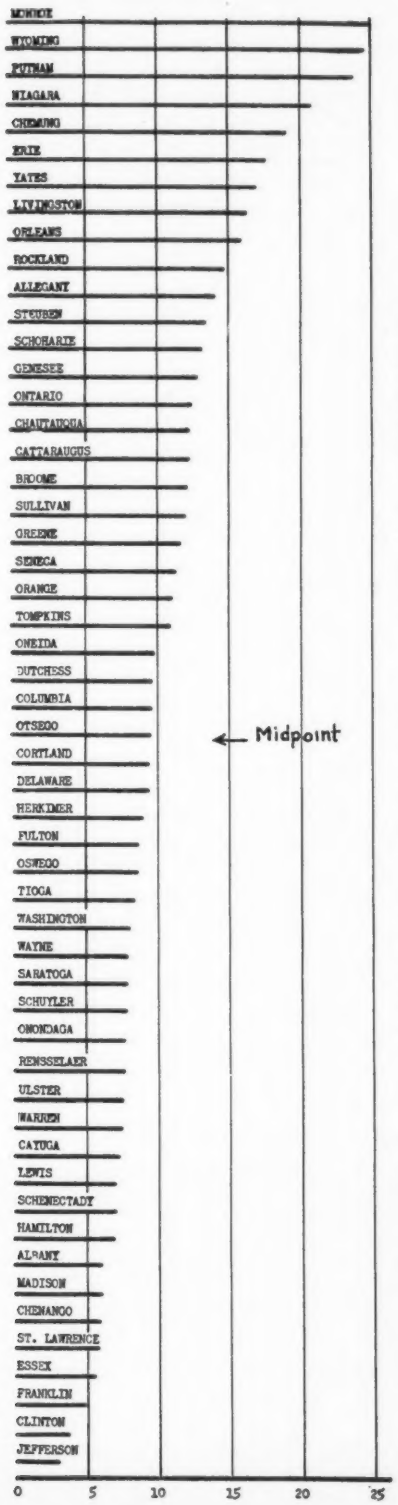


FIG. 3: NUMBER OF HUNTERS PER SQUARE MILE OF RANGE



THIS FALL'S

Deer Hunting Prospects

DEER hunting prospects for the fall of 1949 will be better in the Adirondacks than they were last year. In the Catskills there will be little change, some counties showing a little improvement and others a little decline. In the western counties where bucks and does were legal last fall, the deer population is substantially less than a year ago (that is what the regulations last year were designed for), but in the other counties of this region a general increase in the number of deer will be evident.

Winter losses in the Adirondack region were negligible or non-existent last winter. The trend of hunting conditions in this region is very closely tied to the severity of the winter, the extent and location of logging operations and the wise harvesting of the population. During periods with mild winters the population builds up. During a severe winter thousands of deer die. The region has been subjected to such severe winters in 1930-31, 1933-34, 1939-40, 1943-44 and 1947-48. The heavy winter losses during 1947-48 caused a decrease in the 1948 fall take. But last winter virtually all the fawns present in the fall of 1948 (except for those that fell to the illegal hunter and the few taken by predators) survived the winter. They are yearling deer this fall and hunters that go to the Adirondacks will find far better hunting than they had in 1948. During this year and each succeeding one, until we have another severe winter, deer abundance in this region will increase. Each deer legally harvested from overstocked areas in this region gives some fawn a better chance to survive the coming winter. Because the harvest in general is inadequate during periods of *mild* winters, thousands of deer die during *average* winters and many times that number die during a *severe* winter. Better go to the Adirondacks this fall and do your hunting.

Deer abundance in the Catskill counties will continue along the same pattern that has existed for the past 20 years, up a little one year, down a little the next. The heavy annual kill in this region (legal and illegal) contributes substantially toward keeping the population fairly static.

In the ten western counties where bucks and does were legal last fall, the number of deer has dropped substantially. This was inevitable because the take last fall included about 5,000 deer that would have been legal yearlings in 1949. The absence of these deer alone will cause about a 50 per cent reduction in this fall's take of bucks for these counties. However, that is a small loss compared to the assurance that the quality and quantity of the deer's winter food, as well as a reduction in deer damage to agricultural crops and forest reproduction, has been assured for the next three to five years. Hunters who travel some distance to do their hunting might better stay out of these ten counties. Go to the Adirondacks or some other section of the State.

In the western counties which had only a buck season last fall, the population has probably increased. It will probably continue to rise year after year until the deer eat themselves out of house and home, unless, of course, an open season for deer of either sex is held. A cut-back in the population would conserve their food and shelter and avoid conditions which would result in starvation, but such a cut-back should not be delayed much longer if we are to have something to save.

On the preceding pages there is an article concerning deer hunting success in 1946. It may give you some leads on hunting conditions over the State. Only deer with antlers three inches long or longer are legal in New York this year. Therefore, the information contained in the previous article, interpreted in light of these hunting prospects, might mean the difference between venison on the table or just meat.

—C. W. SEVERINGHAUS

Deer

The live weight–dressed weight and live weight–edible meat relationships

SPORTSMEN and game technicians for decades have been discussing the relationship of the live weight of deer to the dressed weight. Hornaday (1926) published that the dressed weight of an elk (*Cervus canadensis*) equalled 78.612 per cent of the live weight. This conversion factor has been widely used for deer even though Hornaday's percentage was based on one elk. It seemed worthwhile, therefore, to gather further data to see if this ratio does apply to the whitetailed deer (*Odocoileus virginianus*) and to find if any age or sex differences exist.

To do this both live weight and dressed weight were recorded for 22 male and 78 female deer. Weights were taken to the nearest pound. The deer varied in age from five months to 11 years. Most of them came from the Catskill and western regions, but a few Adirondack deer were included.

An analysis of these data (corroborated by supplemental information) showed that female deer during the last three months of pregnancy (April, May and June) had a different conversion factor than that presented below. It also showed that deer killed on an over-browsed range during the critical periods of food shortage (i.e. from certain Adirondack wintering areas during February, March and April) had a much greater visceral weight in relation to the body weight. Outside of these two exceptions, the conversion factors given below are valid for old or young deer, males or females, during the year and especially during the period from September through December when hunters are most interested.

A regression equation computed from the specimens weighed (−1.5 + .788) indicated that smaller deer have a proportionately larger visceral weight than larger deer. It also showed that, on the average, each pound of live weight dressed to .788 of a pound. Because of this difference in relationship between small and large deer the regression equation was more accurate for estimating dressed weight than the actual ratio of the gross weights of the specimens used. The regression line showing this relationship is plotted in Figure 1.

From this graph an individual can easily determine the approximate live weight of his deer. For example: A deer's dressed weight was 163 pounds. Find this point on the left vertical axis, follow it across to the diagonal line and then straight down to the horizontal axis. This deer weighed approximately 209 pounds when alive. Actual weight, of course, will vary from the average (standard error of estimate 3.45 pounds). Therefore, the live weight may not have been exactly 209 pounds but in the majority of instances it would have weighed between 205 and 212.

Of interest also is the relationship of live weight to edible meat. Hamilton (1947) stated that "deer with calculated live weights using Hornaday's percentage of 113 to 221 pounds yielded 57.3 per cent of the live weight in edible weight". In order to shed further light on this question, Hamilton's data together with some collected at Delmar were analyzed statistically. A regression equation computed from the specimen weights (−13.64 + .655) indicated again that small deer have less edible meat than larger deer per pound of total weight. It also showed that on the average each pound of live weight dressed to .655 pounds of edible meat. Because of this difference in relationship between smaller and larger deer the regression equation was more accurate for estimating edible meat weight than the actual weight ratio. The regression line is plotted in Figure 2.

FROM the graph (following the same procedure outlined for Figure 1) one can find that a deer with a live weight of 209 pounds would yield approximately 123 pounds of edible meat. The actual weight relationship will vary from this average (standard error of estimate 4.32 pounds). Therefore, in the majority of instances, the amount of edible meat on a deer weighing 209 pounds live weight would be between 118 and 127 pounds.

Of course, not all hunters are good butchers, and some may keep or throw away more meat than others. Also a deer may be badly shot and thus reduce the amount of edible meat. The figures given above are averages. The deer were clean killed and carefully dressed. An individual hunter will get more or less meat from his deer depending on his skill in shooting and care in bleeding and butchery. —C. W. SEVERINGHAUS

The author wishes to express his thanks to John E. Tanck, project assistant, and to Hubert Maguire, statistician, for their help in this study.

Figure 1: Dressed weight—live weight relationship

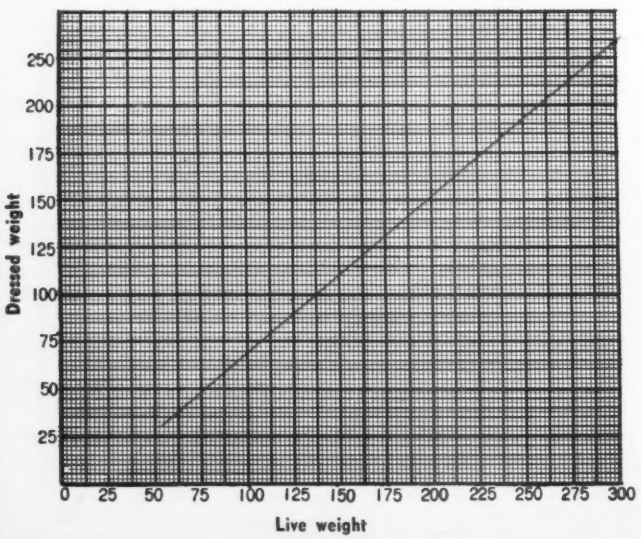
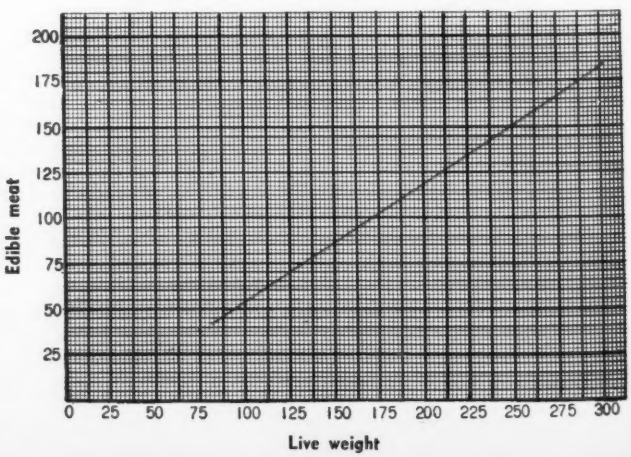


Figure 2: Live weight—edible meat relationship



HOW TO DO IT (5):

Deer

Save Your Skin!

by George H. Lesser, *Taxidermist*

FULTON County, which has two cities, Johnstown and Gloversville, is generally recognized as the glove-leather tanning and leather glove-making center of America. A high percentage of all our leather gloves are manufactured in this small area. All kinds of skins are tanned here, including thousands of deer hides from North America and all the foreign hide producing countries.

The tanning business in this area began shortly after the American Revolution, and it started with New York deer skins. Taking these instead of "wampum" in trading with the Indians, the settlers tanned the skins using a deer brains and smoke process which they called "Indian tan". The leather was good, and it made good mittens, moccasins, and outer garments. It still does.

Modern tanning produces excellent washable buckskin leather, but tanning with the hair left on is not recommended because the brittleness of the deer hair causes breaking and continual shedding. Tanning the hide for buckskin, however, produces an excellent leather for gloves, jackets, or for a trophy to lay over a table-top or chair back. An average hide will make three or four pairs of gloves, which currently retail for around $7 per pair. At least three medium sized hides are required to make a buckskin jacket.

Preliminary attention is easy; simply skin out your deer just as a butcher does a calf. This procedure is too well known to require elaboration, but a few tips may be helpful:

Sharpen your knife, then take a good look at your whole deer for the last time; he will soon be divested of his handsome coat. Decide now, before you cut, whether you will want the head mounted. If you do, you must *not* cut the skin up the front of the neck, nor cut the neck skin off too short. Taxidermists make many uncomplimentary remarks about patrons who cut deer necks up the front, the reason being that if the skin is so cut the mounted head will have an unsightly scar. If you want the head mounted, it is best to remove the head and neck before skinning out the body. To do this, cut the skin in a circle around the neck well back on the shoulders, leaving part of the brisket with the neck skin. (See sketch.) Then cut the skin up the center of the back of the neck to a point midway between the ears. Peel the skin back from the neck flesh and separate the neck vertebrae near the base of the skull. You will not need to skin out the head entirely. Spread a good amount of common salt on the neck skin, fill the mouth and eyes with salt, and deliver promptly to your taxidermist.

Skinning a head for mounting

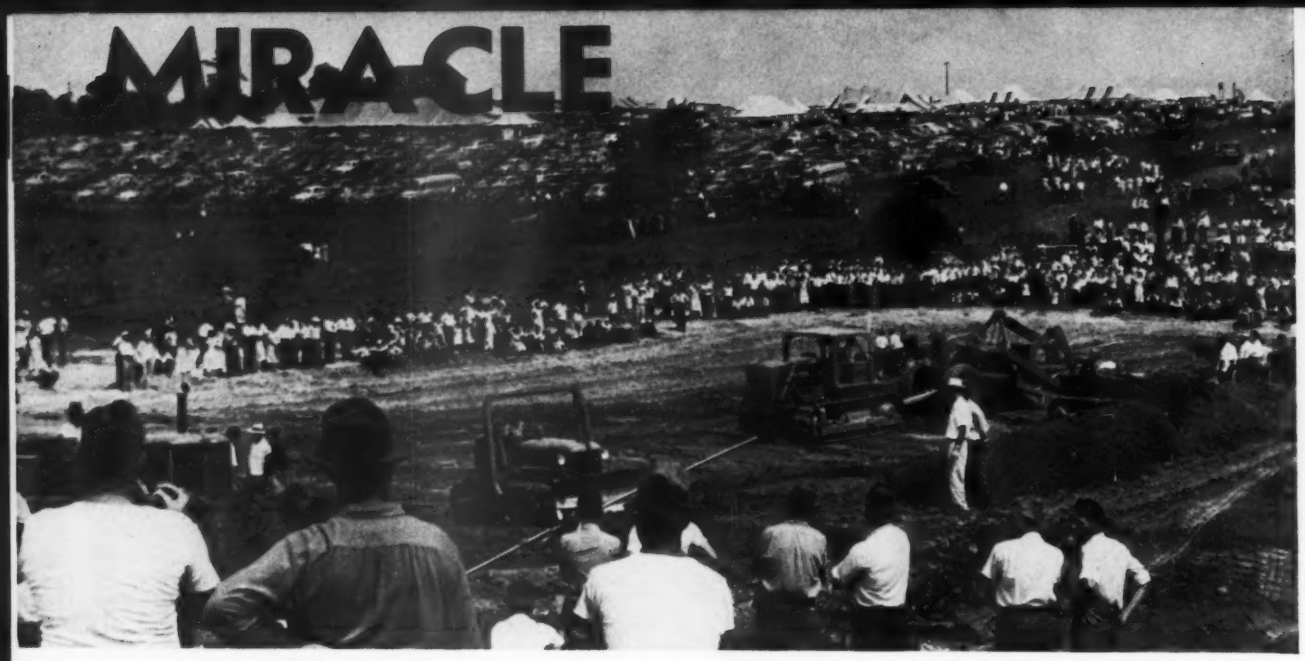
With the head removed, you may proceed with the skinning of the body. Cut the skin first in a straight line from the gambrel (hock) of one rear leg across to the same point on the opposite leg, following the back of the hams at the short white hair line. Peel the skin back from each gambrel, and either hang up the deer for easier work or complete the whole job on a clean floor. Cut straight up the middle of the belly, and then across to the knee of each front leg. Your opening cuts are now all made. Begin taking off the skin, and avoid cutting holes. Don't get the meat started clinging to the hide. If you do, start cutting back near the skin where the meat started to cling, or you will waste venison. Keep your knife sharp. You will be finished more quickly than you predicted—and may even enjoy the experience—if you follow these simple directions.

To keep the skin for tanning, spread it out flat, flesh side up, and salt it thoroughly. An ordinary five pound bag is just the right amount for both head and hide. Dump the salt on the flesh side in the center and rub it in thoroughly with your hands. Spread it from the center toward the edges, being careful not to miss any spaces, and then roll up the skin and store in a cool place. You will notice that water will start collecting soon. This is called "crying", and is the animal water being syphoned out by the salt. The whole secret of keeping a skin in good condition for tanning is salt; the skin will keep for six months if treated with this common product and kept in a fairly cool place.

Too many hunters make the mistake of rolling up a skin with no salt, or not enough. If such a skin can be tanned at all, it produces very poor leather.

LARGE tanneries do not accept single skins. For this reason it is best to send the hide to a taxidermist or to some operator specializing in trophy skins. He will mark it for identification and then store it with others until he has a lot sufficiently large to be acceptable in a modern tannery. Home tanning has proven impractical.

When you have killed a buck you have accomplished something. It's not easy, and you've graduated into an interesting class of alumni. Your tanned buckskin is your diploma. Save it; you earned it.



on a farm

POWERGRADERS, terracers, bulldozers, carryalls, tractors, plows, seeders, rotatillers, draglines, cultipackers, rotary scrapers, power saws, post hole diggers and saw mills—they were all there, all working at the same time, all working on the same farm.

On August 24, William Spicer had a 300-acre farm near Apalachin completely done over in one day. Over 50,000 people, the largest crowd ever to assemble in either Broome or Tioga County, turned out to see the show. The event was sponsored by the Broome and Tioga County Soil Conservation Districts; the plan according to which the Spicer farm was remodeled was drawn up by the Soil Conservation Service, and the problem of putting it into effect was supervised by specialists from the Soil Conservation Service, the Conservation Department, the New York State Extension Service and the New York State College of Forestry at Syracuse. Many other agencies did their bit. Equipment and material of all kinds were furnished by hundreds of local business establishments glad to demonstrate their wares.

Mr. Spicer's farm was chosen for this demonstration because it seemed to be representative of the problem type of hilltop farm, and so offered a fertile field for reclamation by sound conservation practices. Powergraders and terracers built diversion ditches at 300-foot intervals across the steep slopes in order to prevent excessive run-off of water. Tractors and plows opened up contour strips previously laid out around the hills on the level. A seed bed was prepared for pastures with a large rotatiller and the pastures were then limed, fertilized and seeded. Various types of equipment dug drainage ditches, both open ditches and for tile. A pole-type barn was built. Three dams were built for farm ponds, one of which—constructed by king-size bulldozers and carryalls—will impound 1,200,000 gallons of water.

Meantime there was big business in the woods. A woodland management plan was prepared by the Extension Forester and a Forester of the Conservation Department—a plan such as is provided for a co-operator under the Forest Practice Act. Trees were marked for selective cutting, and were then cut with power saws into logs which were skidded and hauled to a portable saw mill at the edge of the woods. The logs were then sawed into lumber.

Provisions for wildlife habitat improvement were also given attention. Odd areas of the farm, not suited for other purposes, were set aside for wildlife refuges and will be planted to food-bearing shrubs and conifers in the planting season. Shrub borders were laid out. A muskrat development was outlined and living fences of multiflora rose will be planted in the proper season at various locations on the farm.

Areas on the farm considered unsuitable for agriculture were marked for tree planting, which again will be done in the planting season. Post holes were dug with power equipment and fences were constructed to protect woodlots and reforestation areas from grazing by cattle.

ACCORDING to Mr. Lyman H. Hammond, chairman of the Susquehanna Valley Conservation Field Day, "The committee is more than pleased with the success of the first big conservation field day to be held in New York." No wonder. It's not every day that the general public is given an opportunity to witness a conservation program which even the best farmer could not hope to complete in less than four or five years. But when the sun set on the Spicer farm and the chugging tools of the machine age rattled off through the dust, a near miracle had been worked, and what's more important, 50,000 people had witnessed it.

If there has been a more convincing demonstration of what good conservation can do—or a better job of selling conservation to the people of our State—we have yet to hear of it.

—HAROLD E. KLINGAMAN,
Supt., Bureau of Soil Conservation

THIS

STATE AID IN COUNTY REFORESTATION

THE establishment of forests by counties, as well as by other political subdivisions of the State such as towns, villages and cities, is provided for under Section 60 of the Conservation Law, which became effective back in 1915. This statute not only authorizes the local governing boards to appropriate money for forestry purposes, but also authorizes the Conservation Department to give advice and assistance to such boards, and to furnish trees for reforesting free.

One or two counties, such as Genesee and Montgomery, established county forests immediately following the enactment of the community forest law, but reforestation by counties generally did not develop until the 1920's. Today, nearly every county of the State has some kind of public forest and ten of them have planted over a million trees each. Oneida County leads the field with five and one-half million; Erie and Saratoga come next, with approximately four million each; then come Lewis, St. Lawrence, Otsego and Jefferson, which have planted from three to three and one-half million, and Oswego, Onondaga and Essex with over a million apiece. While these county forests consist mainly of plantations, some, like Highland Forest in Onondaga County, have sizeable areas of natural woodland. Both Onondaga and Erie employ full-time foresters.

Reforestation by counties received an added impetus in 1929, with the enactment of a statute which became Subdivision 28 of Section 12 of the County Law, providing for direct financial State aid to counties. Under this statute any county may apply for State aid in amounts up to $5,000 per year, the actual State allotment depending on the amount appropriated by the county for this purpose. In other words, the State will match county funds up to $5,000 per year, but the county must first appropriate its share and must submit its application and a proposed plan of expenditure for approval by the Conservation Commissioner, not later than January first of the year in which the money is to be spent.

The original purpose of Section 28 was to supplement the State Reforestation Program, initiated at the same time, by making it possible for the counties to acquire and reforest parcels of sub-marginal land of relatively small size, such as could not be efficiently administered under the State program which called for acquisition of tracts having a minimum size of 500 acres. During the first three years, from 1930-1932, 27 counties participated in this program. In 1933, State aid was discontinued as part of the State policy of financial retrenchment at that time. But in 1945 the program was revived, and in the past four years an increasing number of counties have participated: five in 1945, 11 in 1946, 13 in 1947, 15 in 1948. The 15 counties now participating include all but one of the "Big 10" which have planted more than a million trees, and six others: Allegany, Montgomery, Schoharie, Tompkins, Sullivan and Wyoming.

Although the current program is usually referred to as "State Aid to Counties in Reforestation", it is well to point out that the wording of the law is broad enough to include any *bona fide* forestry projects which the county decides to undertake. Thus, the counties are in no sense limited to using these funds merely for the purchase of land and planting of trees, but may also use such funds for "caring for and protecting such plantations and other forests". Since 1945 there has been an increasing emphasis on protection and cultural work—fire lines, thinning, pruning, releasing and so on. In a number of cases, the planted trees are of large enough size so that counties have been able to realize some income from the sale of products. For example, Schoharie and Oswego have sold pulpwood, Allegany and Erie have done a thriving business in Christmas trees.

IN all this work, the forestry committees of the Boards of Supervisors have played an important part. Indeed it may be said that the success of any county program depends directly on the amount of interest and enthusiasm given to it by the forestry committee. To any county board that contemplates setting up a forestry program we suggest the following:

1.) Appoint a forestry committee of supervisors who have some familiarity with the woods and who will take a genuine interest in the work.

2.) Contact the nearest District Forester, or the Conservation Department in Albany, regarding State aid.

3.) In acquiring land for forestry purposes, be sure to have the boundaries located accurately. A good property map is one of the best investments the county can make.

4.) As the project develops it will usually be worth while to engage a consulting forester to supervise the various operations.

5.) Set up a good system of cost accounting at the start. This is desirable in any case and is essential if State aid is to be obtained.

—E. W. LITTLEFIELD,
Superintendent, Forest Management

OR THIS

Scatter Shots

. . . NOTES OF GENERAL INTEREST

MAIL ORDER–There appears to be considerable confusion in the minds of some people as to just what sort of service this Department is supposed to provide. To date, however, we have received nothing to compare with the following:

Sir: This is to tell you that the map posted on the sixth of January reached hand and I thank for it. I want another kind of catalogue and I will be much pleased if you can get a pair of shoe and one fountain pen to me. So by that time I will direct all our customers to you. I want a pair of socs with its price when I get it I will send you the money. I also want a spetacle. Thanks while waiting for urgent reply.

L. Shomoye, 156 Strachan Street,
Ebute–Metta

MAIL (AS WE GET IT)–I would like to no what is going to be done with the (Bear) I live in the township of West Stockholm and last tuesday night around 10 P.M. My son whom is 18 year's old. was walking home from West Stockholm on the East road. About half way he hurd the Neighbor's Cow's bellering & running So he stoped beside a tool shed to see what was the matter and a old Bear and two big Cub's Come running down threw the pasture after my son. He ran in the tool shed and shut the door but they snifed around the door then the Neighbor's dog came out barking & skaired the bear away so my son Could get out and get home. And their has been reports of several seeing bear. their Most be Something done so the women & Children Can get out in the feal's to get berries ect.

As if they will Chase one they will others'. It is getting unsafe. Will you please See what Can be done.

From an old postcard found in our files: Ed. Moote, Sept. 26, 1908, on a wager that he couldn't cut 5 cords of wood in 12 hours, cut 5½ cords between 6 a. m. and 4:30 p. m. and piled 5¼ cords.

THOSE MARKERS, THOSE BEAR–Bears along the trail from Spruce Lake to West Canada Lakes seem to find the blue trail markers offensive–and so have torn most of them down. Ranger James Lawrence of West Canada Lakes has come in for a new supply as a result. He says it's very noticeable on balsam trees where the bears have left their claw marks on the bark in tearing the markers off.

Oddly enough, they don't bother the red and yellow markers. Who says animals are color blind?

WHAT'S YOUR BRAND?–Out west, so they tell us, they have to treat the livestock rough. They rope 'em, throw 'em, tie 'em and brand 'em so the owners will know 'em. But nobody puts brands on fish, at least as a usual procedure.

So when Mr. Ralph Whittleton of Macedon wrote us that he caught an eel in the St. Lawrence River on July 5, and that said eel had a brand, 511, on its side, we were confronted with another fish mystery. The eel was 40 inches long and was caught at Alexandria Bay. When you have this information you know as much about the affair as we do, except that we checked to see if the Quebec Department of Maritime Fisheries had been up to any tricks. They pleaded not guilty, although they've tagged a number of eels to study their growth and migration.

Now then, judging by the way the mistakes we make are pounced upon, we have some pretty clever sleuths among our readers. Perhaps one of them can tell us who roped, tied and branded this eel.

IN CZECHOSLOVAKIA–"There is a good and novel system of game laws providing that a day's bag be divided between the hunter and the state, the former paying for what he takes home and the latter distributing the rest as food in Government messes."

—C. L. Sulzberger
in The New York Times

GIERO'S RATS—The rats in New York State's northern wilderness are a hardy breed. In the early days when wooden sailing ships from all parts of the world came into New York Bay and discharged cargoes at docks as far north as Albany, rats from Cathay, Iberia, from South America, Clydeside rats and American rats fled ship and in the course of time produced a breed second to none on the Atlantic Coast. These rats stowed away in hay and grain on canal boats and big supply wagons and headed north.

Some years ago we took a trip up Cold River in the Adirondacks to visit John Rondeau. Johnny was a smooth shaven youth in those days; the world and the Conservation Department had not found him. He was just a guide then, and his cabin, at the Big Dam on Cold River, had been the blacksmith shop when the area was being lumbered. The fireplace was made of big charred logs with a piece of stove iron on top to catch the flame before it evaporated up the chimney. About once an hour Johnny would throw a pail of water on the back of the logs.

But to get back to the point, we slept in the cabin and rats were running over us all night. Johnny didn't seem to mind them. He had the strange notion they kept porcupines away. In any case, these Cold River rats had a lot in common with Hudson River wharf rats; they were big and noisy and held man in contempt.

Well, not long ago we were looking through one of Verplanck Colvin's survey notebooks and there we found the solution to the Adirondack Rat Problem. It seems, according to Colvin, that during the War of 1812 a General Giero was on his way north with a big convoy of supplies for the army. He camped in Keene Valley for several nights to give the cattle and oxen a chance to rest and—sad to relate—there were rats in the fodder.

Up to that time a rat had never been heard of in the Adirondacks. But these emigré rats (no doubt from the Hudson or Kennebec River via Vermont) escaped in Keene Valley and started a new breed of animal which thrived to such an extent that in the present era one of them is seen at least once a year, and then the report comes in to Bill Petty, the Conservation Department's Chief Forester in the region, that the wolves are coming back. One was shot a few years ago but the experts couldn't decide what it was—only that it wasn't a wolf.

"Of course not," said one old timer up in Keene. "It's a descendant of one of Giero's rats. There are still a few of them left."—A. T. SHOREY

MARTHA SINCLAIR

SHE finally quieted the dogs and limped to the door to meet us. We stepped from the cool sunshine of a typical Adirondack morning across the door sill into an aura of another year—a voiceless litter of tintypes, and old organs, and memories.

To this hut in a clearing deep in the woods behind DeGrasse (St. Lawrence County) came Martha Sinclair, a girl of 14 years. "And," she declares, "I'm 71 now—I suspect." Around 1900 her father died and since then "Marthy" has bid fair to become, if not our only hermitess, certainly our most original.

Until only a few years ago, stout-hearted Martha worked her mountain clearing with a yoke of oxen, demanded and got a living from the sandy soil. She got out wood and carted it to town like a man. And she wintered there, miles deep in the woods, despite the pleas of relatives and friends who feared for her health and safety.

"Yes, and I'll winter here this year," she said with slow determination. "I belong here."

And here, where she shot deer from her little back window, Martha now sits in faded blue calico, quite alone among her dogs and souvenirs and pictures of long-whiskered admirers. "Yes, I often think of the old days," Martha admits, "and especially about the nice oxen I've had. It's funny, you know," she mused, holding a length of leather and chain, "all there is left is this little bit of old harness."

OLD MAN HASBROUK

AN EPILOGUE: Old man Hasbrouk of Raquette Lake (north shore) is dead these past two years but his spirit apparently has returned in the body of a big black bear. For years Mr. Hasbrouk was the victim of a legend that he "had a way with bears." The story was that he would go down the trail back of his cabin with a loaf of bread, wave it in the air, and then the bears would come and eat it right out of his hands. Hardly a week would pass but that some summer resident would pay him a visit just to see him feed a bear. Strange to say, no bear was ever seen on these excursions. Mr. H's explanation was, "Well, the bars just ain't hungry today, and anyhow, they don't like baker's bread."

This summer the bears have been coming out close by Mr. Hasbrouk's old home. Guests at the North Point Inn and campers from Al Duane's Forked Lake Dam paradise have had to travel only a scant half mile to watch the bears prowl nightly over the hotel garbage dump. Guides around Raquette Lake, and Duane himself, are sure the spirit of old man Hasbrouk is in one of these bears, because, as one old timer remarked, "They ain't afeared of nothin' but children. Just like the old man."

Reports submitted by various bureaus of the Department concerning current activities

Bureau of Forest Management—Getting into heavy part of field season for Forest Practice Act—when greatest number of requests come from woodland owners and when field conditions are best for preparing management plans. This is particularly true of farm owners (summer residents have returned home). Farmer is more woods-minded at this time of the year than at any other.

Bureau of Marine Fisheries—Transplanting shellfish from polluted areas to clean areas, picking up where left off in this work in the spring (held in abeyance during summer because of bather interference). Concentrating on and expanding anti-pollution activities. Doing shellfish sampling, completing surveys of waters in lower New York Bay (by end of October). Finishing tabulation of information collected during past year revealing manner of production and take of shellfish resources for 1948. Sanitation unit in second stage of solving duck farm pollution; (first included finding out the amount of solids, water used and general survey of duck farms; second phase to put into practice theories held for pilot plant operation).

Bureau of Forest Pest Control—In gypsy moth control, trapping program has just been completed and through fall and winter months a ground survey will be made of the extent of the infestations. From results of survey, areas to be sprayed during the 1950 season will be established; planning work to be done next season and contacting every individual in affected areas. Maintaining and repairing plane and ground equipment. On blister rust control active eradication period terminated in September; men now in restricted numbers will start mapping to determine areas to be worked next season; records being brought up to date.

Bureau of Game Farms—Postwar construction progressing with all speed, with brooder, fence and coop construction and repairs. Preparing winter pens for breeders and getting set up to move birds into winter quarters. Fall plowing and seeding under way on rearing fields. Harvesting corn crop (by the way, this is good material for a page some time—spending money to save money, etc.) Fall cleanup of equipment used during summer, making repairs.

Bureau of Fish Culture—Doing fingerling stocking now. Getting hatcheries cleaned up for winter carry-over which will be greater than in the past especially with the new hatchery, at De-Bruce. Plane stocking in the Adirondacks. Taking lake trout eggs from Seneca as usual; hope to get 2½ to 3 million eggs.

Fish and Wildlife Investigations (Fish)—Checking survivals of marked fish, and spawn taking. Many biological investigations on trout and salmon continuing into fall. Brooks, browns, salmon and lake trout are fall spawners, so fall is best time to take fish populations along with spawning take. Winding up summer operations by getting information down on paper.

(Wildlife)—Periodic aerial waterfowl surveys going on. Duck trapping and banding. Checking age of deer will start October 25th in Adirondacks. Hunter checks on some of the research study areas during pheasant season. Paper work on all field work associated with season.

Bureau of Game—Putting finishing touches on pheasant distribution. Getting ready to take another survey of beaver population in order to make recommendations to Commissioner on season. Continuing "more cover on the land" project on private lands in cooperation with Soil Conservation Service, to plant a minimum of 100,000 shrubs. Hope to finish up several wildlife marsh areas.

Bureau of Inland Fisheries—Salvage work to continue until snow flies. Issuing private shooting preserve authorizations; commercial game importation permits. Making survey through district offices for recommendations on ice fishing order.

Bureau of Forest Fire Control—Continuing postwar program, including replacement of telephone lines. Replacing observer cabins. General overhaul of fire fighting facilities, equipment. Fall fire season!

Bureau of Camps and Trails—Immediately following close of camping season big job is to put campsites in winter wraps. With 21 campsites and the Lake George Islands, this presents a lot of work, consisting of protecting roads with barriers, shutting off water, disconnecting pipes, closing up cabins, shuttering windows, storing material used on campsites—from garbage pails to tables. With 1,300,000 man-day usage the garbage pail cleaning task is tremendous. Inspection of ski trails to remove obstructions on the ground and overhead. Lake George "Jones Beach" work will continue until too cold. Belleayre ski project rushing to completion.

Bureau of Nurseries — Preparing ground for sowing seed in 10,000 seed beds. Ship about 3 million trees for State and private orders. Cover 17,000 seed beds for winter with burlap and mulch. Seed extraction and storage.

Bureau of Reforestation (State Forests)—Fall planting program of about million trees in Districts 6 and 8 (red pine, Scotch pine, white pine, white spruce, European larch). Will open bids and establish price for sale of Christmas trees from State forest areas. Hope to sell about 50,000 trees.

Bureau of Law Enforcement—"Editor: How dumb can you get? This is the hunting season. What do you *think* we're doing?"

Biography of a Lake Trout

Seldom has the life story of a fish been as completely known as that of lake trout Number 7464. His parents were netted from Raquette Lake in October, 1940, and returned to the lake after the taking of the eggs and milt. The eggs were incubated at the Warrensburg Hatchery and hatched in February, 1941. In the late summer of 1941 some of these fingerling lake trout, which were about two and one-half inches in length, were transferred to the Rome Hatchery for further rearing.

In May, 1942, when these fish were a year old and four and one-half inches in length, 1,000 of them were marked by the removal of a belly fin so that they could be identified later, and planted in Raquette Lake. During the netting operations in October, 1947, this particular trout was taken on a spawning bed in the same general vicinity from which his parents had been netted seven years previously. In five and one-half years in the lake, he had grown from a four and one-half inch fingerling to a mature trout 19¼ inches long weighing two pounds five ounces. Before being returned to the lake a metal tag bearing Number 7464 was attached to his back fin so that he could be positively recognized in the future.

The story ends in May, 1949, when lake trout Number 7464 succumbed to one of the many fishermen on Raquette Lake. His final statistics were: age eight years, length 21 inches, weight three pounds. It was a happy ending both for the fish and the fisherman. The trout had lived his life expectancy, had contributed to the replenishment of his kind and at the same time had furnished a thrill and a fine lake trout dinner to the fortunate fisherman.

There is an epilogue to this story which should not be overlooked. Comparatively little is known about the lake trout, an important game fish, because of the difficulty of studying a species which lives in the deepest waters of the largest lakes and often requires so long to reach a catchable size. In this case, no results were obtained on work done in 1940 and 1941 until six years later. It should be noted especially that complete data were obtained through the co-operation of an angler sending in the information on a tagged fish that he had caught.

MORE MUSKIES—Muskalonge fingerling production this season was exceptionally successful at the Chautauqua Hatchery. Many truck loads of minnows—22 in all—were salvaged from streams along Lake Erie to feed the fingerlings in the one rearing pond under operation at the hatchery.

For your Information

The pond yielded 4,489 muskies weighing 790.29 pounds. The average size of these fingerlings was nine and one-half inches, the largest fish ever produced during a corresponding growing season. All of the fish were stocked in Chautauqua Lake with the exception of 500. These were stocked in Bear Lake, Findley Lake, the Cassadaga lakes and Conewango Creek.

DEER CHECKING—For the past several years Department research personnel have operated roadside deer checking stations on week-ends during the open season. The purpose has been to obtain data on the age composition of the State's deer herd through examination of those taken by hunters. The results have proven highly valuable.

Last year's very mild winter in the Adirondack region and the deer of either sex season in the western counties set up an opportunity to obtain further needed information this fall. It is planned to operate checking stations in the Adirondacks (1) on Route 9 south of Lake George, (2) on Route 28 near Alder Creek and (3) on Route 8 near Poland; in the western region (1) on Route 17 west of Painted Post, (2) on Route 16 at South Wales and (3) south of Geneseo at the junction of Routes 63 and 20A.

Deer hunters will help promote effective deer management by stopping at these stations so their deer may be checked.

BUG DOG—Game Protector Chester Griffith, who lives near Schenectady, has solved the green caterpillar problem at his uncle's farm. His two cocker spaniels eat them; that is, those that don't escape and become butterflies.

It began a year ago when Queenie, 9-year-old cocker, got interested enough in the caterpillars to try eating a few. She immediately developed a yen for them and spent a good deal of the summer walking up and down the rows of tomato plants, picking off her dinner. Her son, Butch, and a buddy by the name of King have also acquired a taste for caterpillars. No spraying required in this garden.

AT DeBRUCE—Sponsored by the State University of New York and the Conservation Department, the second DeBruce conference on Conservation Education opened September 7 with Dr. Evan Collins presiding. Attending the three-day meeting were representatives of both sponsoring agencies and three faculty members from each State Teachers' College and Agricultural Institute. Aimed at getting more conservation in the schools, the conference

(1) Clarified the purposes and objectives of Conservation Education.
(2) Showed Conservation and Education what they could do for each other.
(3) Nursed a tentative outline for conservation teaching.
(4) Promoted better understanding, by the colleges and institutes, of their conservation problems.
(5) Set up a committee to study desirable means of implementing the program.

There was a new idea every minute at the discussion periods, ably sparked by Hermann Cooper, Herbert Espy, Hugh Wilson, Gustav Swanson and others. On methods of teaching conservation disagreement was cordial, but there was full accord that it should be taught.

With co-operation reaching such a new high, we are sure it will be.

FROM: F. D. Ely, Game Protector
TO: C. E. Moore, District Game Protector

Yesterday, August 14, while returning from skunk investigation at Swains, I came back through the public hunting grounds at Ossian. Nearing the beacon on Rattlesnake Hill I smelled smoke and driving on to an opening I saw a fire in a woods to the north. Using the walkie-talkie I radioed the Sheriff's office in Geneseo and reported the fire. The Sheriff's office asked me to ascertain if help was needed.

I had to go to the West View Road, where driving through the Fred Fries' farm I reached the scene of the fire. Talking to those present I was told the fire had been circled and checked; farmers with the aid of the Town of Ossian grader had brought the fire under control. The fire started about 1:30 p.m. and burned approximately 30 acres up until 5 p.m. when I left. I radioed the Sheriff's office again and told them that no help was needed.

DUCK DOPE—Duck hunting prospects, if the 1949 report of waterfowl abundance in New York is any guide, are certainly much brighter for our gunners this year.

On the basis of the data produced by a State-wide aerial survey during late August and early September (before ducks move in from the north), New York's 1949 duck production is about double what it was in 1948.

New York's native waterfowl are largely of the marsh species, diving ducks coming principally from Canada. In this year's increased production, mallards made the greatest gain. This is the species which New York has been experimentally raising and releasing in cooperation with regional waterfowl associations which are being developed in different parts of the State. The black duck, however, is the most important breeding species in the State. Its numbers more than doubled, as did teal, while woodducks made a 16 per cent increase. Principal breeding territories for waterfowl in New York are the Ontario-St. Lawrence, Central Lakes and Champlain Valley regions.

Reports received from the federal flyway biologist on duck breeding success in Canada also are encouraging. Production of blacks, teal and ringneck ducks appears to be quite good there. Golden-eye (whistler) broods were found to be limited, and it appears this species has taken a slump in the Maritime Provinces.

But adding it all up, the duck hunter has pretty good reason to look to the opening of the season with considerable enthusiasm.

CAMP MEAT SOLUTION—When someone invites a Game Protector in to a dinner of fresh "camp meat", back seven miles in the woods, that's usually bottle-braggadocio. When the Protector goes, that's news. But it can happen.

Up at Stony Brook in the Adirondacks, a group of 20 men, for their week's hunt, annually appoint a member to buy a fat yearling shoat which they truck in on Saturday, scheduled day of assembly. That night the dressing-off takes place and all next week the menu features breakfast sausage, plates of smoking pork chops and other cuts for supper, with a pork and bean sandwich thrown in for that noon lunch in the leaves on top of a timbered ridge.

Crediting Toy Sayer and Charlie Roland with the idea (full details available) the gang say they never ate better (wives report a peculiar quality to the usual homecoming bristles), nor ever racked up a lower board bill, all foods totaling only about $.90 per "man-day".

AUTOLOADERS, AUTOMATICS—On page 39 of our August-September issue we published a letter from a Mr. John Allmaier of the Bronx, inquiring if it was legal "to use my J. C. Higgins 22 cal. automatic" in hunting. Our answer was that no automatics may be used in hunting either game or non-protected species in this State.

Since publishing this letter we have had a flood of correspondence pointing out that the gun in question is an autoloader, not an automatic, and that as an autoloader it may be legally used in hunting. Quite true. In fact, the law which restricts the use of autoloaders in hunting to those with a maximum capacity of six shells (in magazine and chamber combined) does not apply to autoloaders using 22 calibre rim fire ammunition, so that Mr. Allmaier could use his gun in hunting without even putting a plug in it.

Nevertheless, we are informed that a number of Higgins 22s have been converted to automatic functioning, and our assumption was that Mr. Allmaier had such a gun. In that case, it may not be used in hunting. *No automatic firearm, nor any firearm which has been converted to an automatic type, nor any firearm which has a built-in mechanical adjustment which will permit it to function as an automatic, may be used in hunting in New York.*

An automatic firearm is defined as one which will continue to fire as long as the trigger is held back. An autoloading firearm is defined as one which reloads itself after each shot and requires that the trigger be pulled back for each shot. It *is not* legal to hunt with an automatic in New York; it *is* legal to hunt with an autoloader provided it has a maximum capacity of six shells in magazine and chamber combined, and that restriction doesn't apply to guns using 22 rim fire ammunition. All clear?

TAGGED TROUT—Fish stories come true when they have a tag ending. Two tags on brown trout recovered this season made truth of what otherwise would have been labeled fiction.

(1.) The Aged, Aged Brown: In May, 1941 a two-year-old, half-pound brown trout, wearing tag No. 1059 on his jaw, was planted in Crystal Creek, Lewis County, about four miles above the pond at Breman. This was one of 150 tagged trout of similar size and age planted in this experimental stream at that time.

Tags taken from "The Aged, Aged Brown" and "The Active Brown." As shown here, they are about twice natural size; both are jaw tags

During the 1941 season anglers took about one-third of these fish and the research crew took records on a few others. After 1941, nothing more was heard from this batch of fish until late July, 1949. Then Mr. Chester Poker of Utica caught No. 1059 and sent in the tag. The fish was 19 inches long and weighed about two pounds. It was taken about three miles below the point where it was planted in 1941. Much more remarkable was its known age of ten years. Older brown trout have been recorded but not, to our knowledge, in New York State.

(2.) The "Active" Brown: Seven hundred tagged yearling and two-year-old brown trout were planted experimentally in some of the better central New York streams in early April, 1948. This was the co-operative project with Syracuse radio station WSYR mentioned in the June-July number of THE CONSERVATIONIST.

On August 28, 1949, Mr. Robert Hebden of Scotia caught the trout bearing tag No. C1022 below Lock 8 of the Barge Canal. This fish had been planted as a yearling 16½ months before in West Canada Creek below Trenton. By map measurement the trout traveled 89 miles downstream before falling for a grey ghost streamer. During his travels—at least two-thirds of the distance in non-trout water—this fish managed to put on seven and one-eighth inches and about one and one-half pounds in weight.

Mr. Hebden commented that this was an "unusually active" trout.

OGDENSBURG—A significant omission in our "Letters" pages is the correspondence we have received (some of it forwarded from the Governor's office) concerning our article on violations in the City of Ogdensburg (June-July CONSERVATIONIST). This correspondence was, and continues to be, heavy.

It was the purpose of this article merely to expose the situation in the city, in the hope that local citizens and authorities would be moved to take corrective measures. Reports indicate that this hope may be realized. Pending further developments, we are therefore refraining from additional comment or criticism.

LAKE CHARTS—We receive frequent inquiries from our subscribers as to where they may obtain charts of New York lakes, showing shoreline and depth. In the past we have answered such inquiries by suggesting that our correspondents write to the U. S. Lake Survey, 630 Federal Building, Detroit, Michigan.

We are now informed by one of the officers of the Lake Survey that they have such charts only for the Great Lakes and Champlain, Oneida, Onondaga, Cross, Cayuga and Seneca—and for these only because they form a part of the New York canal system. A catalog of Lake Survey charts is available free by writing to the above address.

$.35 PER HOUR—Dear Sir: I received a check for 70¢ for fire No. 114 on July 3rd and 4th at Schroon Lake, Essex County, and wonder the amount of time this is supposed to cover. This seems like a very small amount when a man is asked to go to a fire and drive his car over rough mountainous roads at a dangerous pace to get there at the quickest possible moment.

We have been told that the funds to cover fires, etc. come from fines from hunters and fishermen and that the Conservation Department have more money than they know what to do with. Due to this, we cannot understand them offering a paltry sum of 70¢ for taking anyone away from their recreation period for a couple or three hours in the best part of the day.—(Name withheld)

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According to State law, the Department is authorized to pay fire fighters at a rate of not to exceed $.35 per hour. It is generally realized that this is not adequate compensation compared to prevailing wage levels, but on the other hand it is also generally realized that rendering assistance in fighting fires is one of the duties associated with good citizenship—for which most people don't expect a cash reward.

As to the funds available for such payments, they are derived from two sources: (1) a specific appropriation for that purpose, and (2) a loan authorized by the Constitution if fire suppression costs exceed the amount of the appropriation.

Finally, fines collected from hunters and fishermen go into the Conservation Fund, and are used exclusively to finance the activities of the Division of Fish and Game.

MUSEUM DELAY—A slight delay has occurred in breaking ground for the Adirondack Museum (June-July issue) at Blue Mountain Lake village. Directors of the Adirondack Historical Association, Inc., undertaking the project to house Adirondack memorabilia, on advice of their architect have marked time on starting construction to take advantage of lowering costs.

In the meantime offers of artieles for placement in the museum continue to come in, as well as contributions to the building fund and memberships.

FOREST PRACTICE NOTES — In District 1 a plan for an exchange of information on Forest Practice Act and Soil Conservation District co-operators has been worked out, permitting co-operation between the Department and the Soil Conservation Service in the District to be even closer.

A co-operator in this District, through a consultant forester, has sold 20 cords of European larch thinnings. This material is to be used experimentally to see what kind of paper can be made from it. This same co-operator is also shipping red pine thinnings to Massachusetts for cooperage. Requirements are that the pieces be at least 8 inches long and that they have at least 3 internodes measuring 20 inches. Use of this material is encouraging as an indication that work is being done on uses for this small material.

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Herkimer County has become a Soil Conservation District, which makes District 8 now 100 per cent covered. One co-operator in the District has been cleaning up his woodlot and figures he has saved $400 in fuel bills by using the limb wood to stoke his creamery boilers.

Closer utilization of wood has also become a reality in another industry in the District. This plant is looking for softwood shavings to be bound with cement and moulded into slabs, blocks and tiles.

•

Among the major accomplishments in District 9 has been completion of a management plan for the very extensive holdings of the National Lead Company at Tahawus. To follow out the recommendations contained in this plan, the Company will hire a forester with a game management background and thereby have more effective control of any cutting operations which are undertaken.

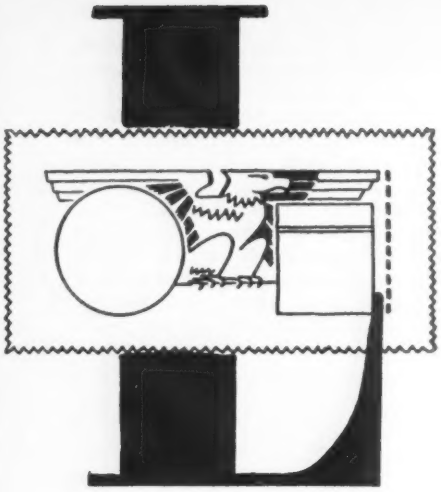
Christmas Present

CHRISTMAS comes but once a year. THE CONSERVATIONIST *does somewhat better than this, appearing six times as often as Christmas does.*

Why not give THE CONSERVATIONIST *for Christmas?*

Possibly your friends, your business associates, your employees, (your employer?), your local school, your 4-H Club or Boy Scout group—maybe some of them would like to get the magazine. We're still selling our product at $1 per year, but we'd like to remind you that you might save yourself (and us) a lot of trouble if you took out subscriptions for longer. Inserted in this copy you'll find a blank subscription form. If you will just list the names and addresses of the people you would like to have receive THE CONSERVATIONIST *as a Christmas present, and if you would be good enough to enclose the right amount of money, we'll do the rest.*

We will send a Christmas card to the people on your list, advising them that they will get the magazine as your gift.



Letters to the Editor

PROTECTED BIRDS

Dear Editor: May I ask one more thing? Where can I get a list of *all* species of birds which enjoy protected status in our State?

David Brooks, WGY, Schenectady

● *"The broad winged hawk, redtailed hawk, sparrow hawk, red shouldered hawk, rough legged hawk, duck hawk, osprey, bald eagle, golden eagle, mute swan (Cygnus olor) and all wild birds other than those named below are protected.*

"The English sparrow, starling, crow, snow owl, great grey owl, great horned owl, cormorant, purple grackle, kingfisher and hawks other than those named above are unprotected wild birds." —Section 203 of the Conservation Law.

RECORD BOBCAT?

Dear Sir: Some months ago your Mr. Seagears wrote about bobcats. When he mentioned the largest known cat taken, I immediately thought of the one (of which a picture is enclosed) shot on East Hill, Keene, near my summer residence. It was shot and is being held by Leo Hickey, formerly of East Hill and now living in Keene Valley. Leo is just about six feet tall, is very much alive, and can therefore be measured by any interested party. The cat's skin, very much shrunken, is on the wall of Whitney's Tavern in Keene Valley. In actual over-all size, I really believe this cat topped Mr. Seagears' record cat.

The story of this cat might interest you. Three years ago Sarah Hale noticed that something was eating the corn in her corn patch on East Hill. She began to watch. I might say she is a dead shot. Her first morning of watching disclosed an animal which, when she shot her .22, whirled and showed a face that sent Sarah rushing into her house behind a slammed door.

The next day a nearby neighbor, Leo Hickey, heard much screaming and cackling in his hen coop. This was again in broad daylight. One quick look disclosed a cat inside. He dropped the small entrance door to the coop, and rushed for his 30-30. The end of the cat quickly followed. In the fleshy part of its back was a fresh wound made by a .22. It was a mere bag of skin and bones, weighing only 37 pounds. Its canine teeth were entirely missing. Apparently unable to make its way in the woods any longer, desperation drove it to brave the danger of humans and gunshot to satisfy its hunger. Although its important teeth were missing, it still had huge dewclaws which, unlike the skin, have not shrunken.

Robert Sickels, Hamilton

FISHING BUOYS

Dear Editor: I have been fishing here on 4th Lake for nearly 50 years. I fish from a 35-foot spring buoy and a 60-foot summer one. This is not the pleasure it once was, an important reason being that power-boat operators seem to feel that they own the lake and take an insane pleasure in running as close as possible to a "poor" fishing boat.

Now if these operators force removal of all buoys a good deal of pleasure will be cancelled for a quite a few fishermen. Can you give me an opinion about the laws governing buoys in such waters as this?

Maurice P. Alger, Old Forge

● *This comes under the Navigation Law. The Attorney-General's office informs us that a damage suit would be possible in the event that a power boat struck a buoy set out by a private individual without the permit required for such buoys on navigable waters. But we sympathize with your stand; plenty of power boat operators might be a little more considerate.—Editor*

Could be a record to beat. Killed by Leo Hickey of Keene Valley (see letter at left)

CONSERVATION CAMP

Dear Commissioner Duryea: One of my sons, Jay—aged 12—has just returned from his first session at your Camp Willowemoc in DeBruce, which he attended under sponsorship of the Rockland Shooting Club of Nyack.

After listening for hours to the story of his experiences there and spending more hours going over the literature on conservation, hunting, etc., which he brought back with him, I wish to express my sincere thanks for enabling the youth of our State to attend such a course of training, education and clean outdoor sport.

You and your Department are doing a great amount of good for the State and its people by this work, and my only hope is that someday it may be arranged that every boy may have an opportunity to participate in such sessions.

John Malone, Jr., New York City

TEACHING CONSERVATION

Dear Editor: This is penned for the purposes of saying "Thank you" and also uttering a squawk—a mild one but nevertheless a low outcry!

First the thanks. As a teacher of some twenty years' experience, I think *The Conservationist* is a fine aid to teaching the subject of New York State. It is extremely valuable in introducing our State's natural resources and bringing their importance home to the child in the school. I think there should be a course in conservation beginning in the lowest grades in school. Even kindergarten children can be taught that there is danger to their future in the wanton destruction of wildlife—be it nothing more than a violet plant or a robin's egg.

Now comes the squawk. Why not include a few average classroom teachers in this Conservation curriculum meeting? Believe it or not, your average every day teacher who deals with the small fry of our State for forty weeks out of every year can tell the college presidents, etcetera more about what young New York can and will absorb and how to get him to absorb it than they will ever be able to figure out all for themselves.

But the idea is wonderful. Let's hope it gets put across.

Doris G. Walsh, Webster

● *We're just getting started in our program to get conservation taught in our schools. As a starting point, we must have the co-operation and encouragement of those responsible for the State's educational policy and program. But don't think that the wisdom and experiences of our teachers in the classrooms will be neglected. Bear with us a while.—Editor*

ATLANTIC SALMON

Dear Editor: While reading your June-July 1949 issue of the magazine, I became particularly interested in the article "Essex County" by Nick Drahos because it mentioned that Atlantic salmon are taken in the Bouquet, the Branch (of the Schroon River), the Schroon River, Eagle and Paradox Lakes.

As a result of vacationing in New Brunswick, Canada last summer and this, I have become an enthusiastic Atlantic Salmon fisherman. After reading the above mentioned article it occurred to me that it may not be necessary to go so far from home in order to enjoy Atlantic salmon fishing.

Edward A. Smith, Athens

• *The Department is experimenting with salmon of both fresh water and sea-run parentage in the waters you mention, and so far results indicate that it's impossible to tell the difference between the two. But our salmon fishery is not yet large enough to withstand much fishing pressure.—Editor*

DUCK, HERE SHE COMES

Dear Editor: Fly vs. Worm has produced some interesting letters from our so-called sportsmen (August-September issue). Especially from F. Ransom Collins of Scotia, who states that he and fellow up-staters sure hate the sight of us New Yorkers (City dwellers) when it comes to hunting and fishing.

I just returned from a two-week trip up-state and although the likes of F. Ransom Collins and fellow upstarts—pardon, I mean up-staters—may not like us when it comes to hunting and fishing, I didn't see any of them refusing our hard earned (50 weeks a year) cash. (I returned "everything" to the water that I caught this trip.)

Harold Levin, Bronx (City Dweller)

LOGICAL

Dear Editor: I am tired of reading warnings about wearing red while hunting deer in New York State. The law reads that deer with horns under three inches cannot be taken, period. When a man shoots at objects moving in the brush—or a deer too far away to observe horns—he *is violating* the law regardless of what his argument may be.

I am sure a good sportsman enjoys being a good loser when an animal out-smarts him. Let's stop "Murder in the Woods."

John F. Tollmann, Yonkers

• *We're right with you on that one.—Editor*

GOOD

Dear Editor: I have been a subscriber to *The Conservationist* since it began and am taking this opportunity to use your "Letters to the Editor" to cite two experiences of mine at the Lake George Battleground Campsite which prove these facilities provided by the State are of great value.

In June, 1948 a member of my party left a set of automobile tools at the picnic grounds. The tools were found by a camper who returned them to Ranger Elliot Dudley who promptly returned them to us. And during the July 4th weekend, another member of my camping party left a wallet containing money and valuable papers in the rest room of the camping grounds. A camper returned the wallet to Ranger John J. Dier who gave it to us when we returned to the site looking for it.

It is experiences like these which make one grateful for these facilities provided by the State.

E. W. Ryan, Cohoes

VIOLATORS

Dear Editor: Why not publish the names and amounts of fines collected of those convicted of breaking the Game Laws. It would seem to me to be assisting those who have Conservation at heart, by being more watchful, by encouraging the Game Wardens, and showing what they are accomplishing. I believe Pennsylvania has found this to be the case.

J. A. Singmaster, Bronxville

• *Such a list, classified by counties, is sent regularly to all the newspapers in the State. If your local editor doesn't publish it, perhaps you could induce him to do so. But we just haven't got the space in our magazine.—Editor*

DEATH ON THE HIGHWAY

Dear Editor: While coming through the Adirondacks from Lake Placid to Old Forge on June 29 I noticed a dead fawn on the side of the road, apparently a victim of a car. Is this a common occurrence?

Asher J. Margolis, Chicago, Ill.

• *About 1,000 a year in this State.—Editor*

WHITE BUCK

Dear Editor: Enclosed find a photo of a white buck, killed in Franklin County by Leo Young of Malone, N. Y. which I mounted for him in 1948. The deer was pure white, with a pink nose and only a few traces of brown on tips of ears and about the eyes. However, it was not an albino as the eyes were normal color and not pink. Mr. Severinghaus of the Delmar Game Farm suggested that I send in a photo as you were interested in publishing them in *The Conservationist*.

Joseph Bruchac, Greenfield Center

NO MORE SAWDUST

Dear Mr. Stone: Your article in the April-May *Conservationist*, "No More Sawdust Piles", is certainly the answer to the Berkshire home gardener's prayer. For years I have tried to push a cultivator between my rows of peas, beans, tomatoes, etc., and usually end up by using a pick to dig the weeds out.

But my compost heap is my pride, and I want to enlist your help because I realize since reading your article that I can obtain more bulk, more friability, by mixing large quantities of sawdust with weeds, manure, sod, dirt, garbage and even dead cats, which go in my heap.

But what I wanted to ask you is this: I have been breaking down my heap with Adco. What is Adco? Does it fertilize? The problem of gardening is, of course, nothing but chemistry—and damn hard work—so why can't I know, when my heap of garbage, etc., is "ripe", exactly what it is chemically? Is there not some way for me to mix up this pile with sawdust, nitrate of soda, manure, weeds, etc., so that I will obtain perfect results? My heap for next year or this fall is now contained in a square made of four twelve-foot wire gates four feet high. It is already one quarter full. What proportions of sawdust and manure and nitrate and what do you advise I should put in it to make it perfect?

Frank Whitney, Cherry Plain

• *I feel somewhat encouraged to hear from someone who is using compost with an awareness of what he is doing and why. Organic matter is certainly important in soils, particularly in heavy soils such as you have to deal with, but for very definite reasons—whereas much of the compost discussion in garden magazines smacks more of witchcraft than science.*

So far as I know, there is no limit on the amount of sawdust you could add to a compost pile unless it became too wet or packed to allow fungal activity. Unlike many other materials, much of the decomposition of wood apparently is accomplished by fungi rather than bacteria, and the fungi require adequate oxygen. I would suggest working in say, 1/3 sawdust as an experiment, using more next year if the results are satisfactory.

To mix with your compost, you might try the formula recommended for making artificial manures from straw. One such formula is 70 lbs. sulfate of ammonia, 50 lbs. of superphosphate, and 30 lbs. of lime per ton (dry weight) of material. This amount of nitrogen is in accord with McIntyre's recommendation for sawdust. You could also add 5 lbs. of magnesium sulfate if desired or more simply, use a limestone containing some magnesium. If you use manure, you can cut down on the amount of ammonium sulfate but would do well to continue to add the superphosphate and lime.

There is really no one "perfect" compost nor, for that matter, any one definition of what might be perfect. You would probably do well to apply your compost before it is totally decomposed to a structureless material. A given weight of rapidly decomposing material in the soil would have much more effect on soil tilth than the resulting product after decomposition in a compost heap. For this reason, as well as the saving in labor, I suspect you would do well to try direct application of sawdust before plowing. You will, of course, need liberal amounts of a good mixed garden fertilizer such as a 5-10-5 or 10-10-10 and probably a supplement of nitrate of soda. Some people prefer to apply the sawdust as a mulch the first year to permit a little of the initial decomposition to take place before the material is mixed into the soil with subseqent plowing. The main potential source of difficulty is running into a nitrogen shortage through very heavy applications of sawdust. My estimate of a pound of sodium nitrate per 40 square feet is based on an application of about an inch, which is roughly equivalent to 20 tons dry weight per acre of sawdust. This amount will not be adequate for applications of 3 or 4 inches. Even though our experience has been favorable, I would prefer to go somewhat slowly, adding an inch or so per year over a period of years rather than trying to accomplish everything at once, except perhaps on small areas for testing feasibility of large applications.

I will welcome reports of your success or difficulties.

Ass't. Prof. Earl L. Stone, Cornell University

CATSKILL 'COONS AND COYOTES

Dear Sir: The paragraph on the coyote which starts "We never have heard in New York the coyote's evening song nor have we reliable records of its occurrence, but obviously we can expect it!" Here is one occurrence for your records when a coyote's evening song was heard in New York State last fall, and not heard in the Adirondacks.

I was living on the east side of Boyd's Corner Reservoir in the Town of Kent, Putnam County, opposite Kent Cliffs. It is my habit to exercise my dog every evening between 8:30 and 9 p. m. This night we were probably 200 yards from the house when we heard the coyote's song twice to the north of us. The first time I did not believe my own ears since the sound was so strange and unexpected in this part of the country. The second occurrence, probably one minute after the first, confirmed the presence of a coyote in the woods north of the reservoir. The song of the coyote is very familiar to me since they sang me to sleep almost every night for many years at home.

D. C. Hopkins, Mt. Vernon

Dear Mr. Seagears: On one of my trips to my cottage at Cooks Falls on the Beaverkill I had two rather unusual experiences. I counted six raccoons dead in the road all between Livingston Manor and Cooks Falls. I have been going back and forth to Roscoe and Cooks Falls for many years hunting and fishing but at no time have I ever seen a dead 'coon in the road. This was on June 7, about the full of the moon. Does this mean that 'coons are on the increase in this neck of the woods?

About one mile below my cottage and quite near the farm of Melvin Stadel I saw a strange animal by the side of the road. I got out and looked it over and found that I was looking at a dead coyote. The animal weighed about 25-30 pounds, was about 32 inches long in the body and the tail was about one foot long. It was a male animal rather old, hair colored tawny brown with blackish hairs along the back. The head was decidedly like a fox with large pointed ears, pointed nose with white upper lips and whitish patch on the chest. I called Melvin Stadel (a mighty well posted farmer) over to see the animal and he agreed that it looked like the coyote you described and pictured in the April-May *Conservationist*.

Albert F. Griffiths, M.D., Bayside, L. I.

● *The raccoon population, which seems to be higher this season than any in memory, in part may be attributed to the very low price of 'coon pelts; few trappers bother with them. These notes on the coyote seem definitely to place this animal in the Catskills. If we could spot the presence of others, we could get a State trapper at work in the area.—Clayton B. Seagears*

LOTUS DOING OK

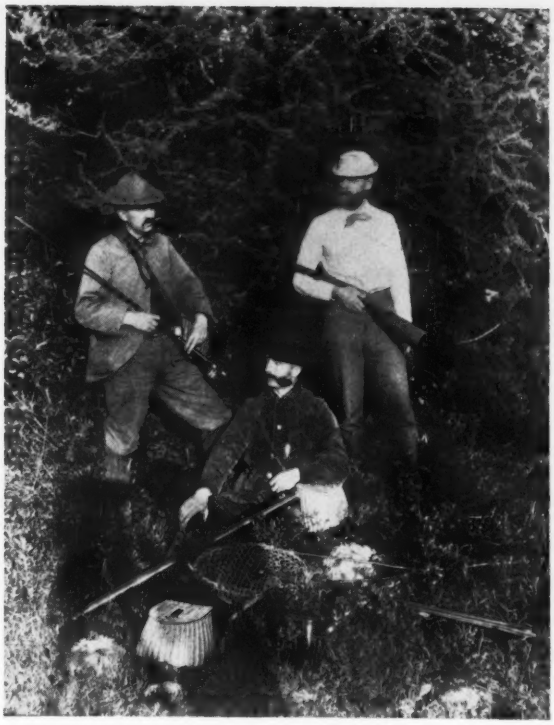
Dear Editor: Your August-September 1947 issue convinced me that I wanted to see the yellow lotus of Sodus Bay. Mid-August is given as the time of best blooming but a trip through northern New York and into Canada makes me believe that the blooming season is about two weeks ahead this year. Will you tell me the best possible time to see the lotus?

Thomas Wilson, Ossining

● *Suggest you time your trip to arrive at Sodus at about the end of the first week in August.—Editor*

Dear Editor: Thanks. Was in Syracuse on Tuesday last, August 2, and ran up to Sodus. The lotus were almost fully out.

Thomas Wilson, Ossining



1886

This picture appeared on the second cover of our June-July issue. At that time we had no idea as to the identity of the sportsmen in it.

FINGER LAKES ISLAND

Better look up your Geography down there, Boys. Cayuga isn't the only Lake with an island. (*Note on back of postcard showing Squaw Island. —Ed.*)

Fred S. Reed, Canandaigua

Dear Sir: In the August-September issue of your magazine I believe you made an error on page 11 by stating that Frontenac Island on Lake Cayuga is the only island of the Finger Lakes. Squaw Island at the northern end of Canandaigua Lake is a true island and has trees, beaches, and an unusually large stone on which is a metal historical marker.

This island was used by the Indians when the Sullivan Expedition came up from Pennsylvania to punish them. Old men, squaws, and children were hidden until the danger was over. My father says it is also important geologically because of the unusual limestone formations, resembling bisquits, that are found along its shores. Now it is used by fishermen, picnickers, sightseers, and serves as a refuge for sailors during storms. It is also the smallest New York State Park.

I am an enthusiastic eleven-year-old reader.

Marcia Payne, Canandaigua

● *Enthusiastic, and correct.—Editor*

CHECK!

Dear Editor: While reading your fine magazine today I noticed where a man saw a strange bird when he was out riding near Warwick, N. Y. I also noticed he asks: is it a protected species or could it be shot?

It seems to me there is an all-together too large percentage of people today who are always ready to take advantage of some unprotected bird or animal. Too many people think the earth was made for them alone and don't realize that without buzzards, gulls, crows, foxes, coyotes and other scavengers, the "human" race could not survive on this wonderful piece of dirt.

John A. Snyder, Newburgh

3 SPORTSMEN

Dear Editor: The picture of the three old fishermen in the last issue of The Conservationist has caused considerable interest among the old residents of this village—such as Dr. Trembley—because they recognize the man sitting down as old Dr. Trudeau who was one of the pioneer fathers of this village.

His son, Dr. Francis Trudeau, recognizes it as being a picture of his father and says it must have been taken well over 60 years ago and before he was born.

They are all very anxious to find out where you secured this old picture and the names of the other two people in it. I would appreciate it very much if you could furnish me with this information.

Ray L. Burmaster,
District Game Protector,
Saranac Lake

BARBER SHOP READING

Dear Editor: Your magazine is certainly worthy of more extensive circulation. Perhaps you could increase circulation by having sportsmen lend or give a few back numbers to their local barber shops.

Thomas L. Conklin, Jr., Poughkeepsie

WORM STILL TURNING

Dear Editor: Your editorial "The Worm Turns" in *The Conservationist* of April-May 1949 was a bulls-eye. The chap you refer to in that editorial concluded that next year he would go to Canada, and you say "Good. But tough on Canada."

Well, of course, we don't want him either.

D. M. Trew, Ass't. Forester,
Victoria, British Columbia

1880

A tintype which identifies the two standing figures in the photograph on the oposite page. Our readers have also recognized the third.

TINTYPE

Dear Editor: *In the picture of the three old-time sportsmen which appeared on the first page of your June-July issue, the gentleman standing on the left and holding the fly rod was my father, Jeremy G. Case, while the man standing at the right was Uncle Will Rowe of Syracuse. The picture was taken about 1886 at a club near Minerva of which my father was one of the organizers. Incidentally, the fly rod my father is holding was of split bamboo and you may notice that it is equipped with one of the early automatic reels. I caught a good many brook trout with that same rod.*

I am enclosing an old tintype, taken about 1880, which shows my father and Will Rowe (left) in another setting. It must have been a serious business to have one's photo taken in those days.

J. Frank Case, Kirkville

BACK ISSUES

Dear Editor: I understand that a number of collectors would like to obtain the early copies of *The Conservationist*. Let's hear what they will offer for Volume 1 complete—issues 1 to 6 inclusive.

F. Leonard Folster, Box 31, Rockland Lake

Dear Editor: I have a complete set of all issues to date which I will sell as a set if you have anyone interested.

F. Norton Curtis, 84 Glendale Ave. Albany

AN IDEA

Dear Editor: Why not attach to each fishing license brief instructions as to how to preserve the life of the fish which has to be put back?

R. C. Russell, New York City

BENJAMIN BUNNY (EUROPEAN EDITION)

Dear Sir: The letters that have been appearing in *The Conservationist* recently relative to the weights of jack rabbits or English hares in lower New York State give me the urge to put in my two cents worth, So here goes;—

About 10 or 12 years ago I used to hunt pheasants on the farm of a friend near Chelsea-on-Hudson in Dutchess County. Nice rolling country with plenty of open fields. I had heard fabulous tales of the occasional "Jack Rabbits" (as they were locally called) one might meet in that vicinity but had never jumped one in several years' hunting. However this situation was taken care of most abruptly one day as I walked through a recently cutover meadow. Without any warning there was a sudden explosion in a nearby clump of grass left standing by the mowing machine, and out popped the Paul Buyan of all rabbits. To my astonished eyes he looked as big as a calf and like a cross between a kangaroo and a jackass. I was completely taken by surprise but finally instictive reactions overcame my amazement. There was a pinwheel effect of legs, ears and rabbit and there he lay.

I had shot plenty of cotton tails and snowshoe rabbits in my time, but this boy made them look like a lot of midgets. When I picked him up by the hind legs his head dragged on the ground and the pockets in my gunning coat were never built for an animal of his proportions. That night at home I put him on our kitchen scales and he tipped the beam at exactly 12 lbs. without his internal equipment. I have always felt that he must have weighed 16 or 17 lbs. "on the hoof." Four of us had two good meals from his ample carcass, the first night larded with bacon strips and roasted and the second night the meat warmed up in a casserole with noodles and gravy. It sure was delicious eating.

I understand that these big hares were never very plentiful in that locality but I've heard many stories from old timers there of their uncanny ability to cope with the wisest old hound and their generally excellent qualities as a game animal. By now they have probably about disappeared and I imagine that paragraph in our Conservation Laws which prohibits their importation and release within the state is responsible for their passing from the scene. I just wonder if some day the Department, in its wisdom, may see fit to change this ruling so that we can again introduce them to our rolling countryside for I must admit that my one encounter with this noble specimen of the rabbit family leaves me with a nostalgic desire to meet up with him again.

"How's about it?"

C. Albert Jacob, Jr., Scarsdale

• *Quite an animal. But a Federal law prohibits their importation.—Editor*

CAMPSITE FOR HUNTING

Dear Editor: This year I am planning a hunting vacation for the last two weeks in October (16-30). After reading your story, "Godfatiier of a Campsite" in the June-July issue of *The Conservationist* I realized some of your campsites would still be open. I would appreciate it if you will send me a list of the campsites still open that late.

Ray George Cunningham, Bronx

• *Lewey Lake (Hamilton County) will be the only one still open. But of course there's plenty of good State-owned land where you can set up a tent.—Editor*

SWEET MUSIC

Gentlemen: Speaking of caretakers (Godfather of a Campsite by Barnett Fowler, June-July issue) our vote goes to Mr. Walter Johnson, Caretaker at Burnham Point on the St. Lawrence River. The week of July 11 found the "boss" (Mrs. Wilbur) and me in our tent on a neat, clean site at Burnham Point. We were so impressed with the neatness and well organized atmosphere that we are moved to speak about it. Mrs. Johnson gets a very excellent "assist" and the Superintendent of the area, although we did not catch his name, is very interested not only in the park and equipment, but also that people in his territory have a good time.

Mr. U. B. Stone will be interested to know that we kept 12 bass which averaged just about 13 inches. They were in shallow, clear water around the weed beds on the south shore opposite Carlton Island. Tell "Stoney" that I fished all one day especially to catch a tagged fish knowing how much it would please him, but no could do.

Must seem good to hear from someone who is pleased about the whole thing—what?

Leonard C. Wilbur, Binghamton

• ***Could we send you some postage stamps?—Editor***

3 FAWNS

Dear Editor: I recently saw a doe with three healthy fawns on my farm. Is this a rare occurrence or will it happen the same percentage as sheep when feed conditions are right?

Reuben Graves, Petersburg

• *Not usual—but not rare — in Rensselear County.—Editor*

PHOTO CREDITS

Second cover, page 10, P. W. Fosburgh; 4, Department of Conservation, Cornell; 8, Frank Whitney; 12, Earl McGuirk; 28, Nick Drahos; 29, Saratoga Co. Forestry Commission, Onondaga Co. Park and Regional Planning Board; 19, Mr. Richards; 20, Doug Finch, Fred Chambers; 31, J. D. Bulger; 34, Fred Chambers; 4th cover, Ellen Edmonson. (Pilot for aerial, Earl McGuirk, Jr.)

BIG BUG of the Bass Riffs

TWO insect larva have profound effect on the lives of Man. One is the silk worm. The other is the hellgrammite. Put the silk worm to work and it has a smoothing effect. Hang a hellgrammite on a hook and it has a soothing effect. One causes Man to remember. The other helps him forget. The moral of this thing is that it takes a whole mess of silk worms to catch a Man but only one hellgrammite to catch a bass.

What is a hellgrammite?

By way of answer let's take a look at the way the scientists (our lives are in their hands) have split down the divisions of the Kingdoms of Nature.

First, we have three Kingdoms: Mineral, Plant, and Animal.

The Kingdom of Animals is divided primarily into Phyla (of which there are 17, ranging from the one-celled Protozoa to the Chordata with skeleton, special central nervous system, etc.).

The Phyla in turn are broken down into Classes, Orders, Families, Genera (Genus is the singular), and, finally, Species. There also may be Subphyla, Suborders, Subgenera (Subspecies), etc.

For example, Man belongs to the Phyla Chordata (along with sea squirts, rattlesnakes, hoptoads, catfish, pelicans, and skunks), Class Mammalia, Order Primates, Family Hominidae, Genera Homo and Species Sapiens. Hence Man's scientific name: *Homo sapiens*.

The Hellgrammite also is of the Animal Kingdom. But there any similarity in classification ends because it is of a different Phylum. Here's its classification: Phylum Arthropoda (segmented with periodically shed external skeletons plus segmented legs and things), Class Insecta (bodies divided into head, thorax, and abodmen and with a pair of antennae when adult, etc.), Order Neuroptera (four many-veined membranous wings, larvae unlike adult, etc.), Family Sialidae, Genera Corydalis and Species Cornuta. Hence our fine unfeathered friend is *Corydalis cornuta*.

Tell a Norwegian scientist that you're shipping him a dandy big hellgrammite and he won't know what you're talking about. But tell him Corydalis cornuta and he *will* know—all because Latin, of course, is the scientist's universal language.

Even we Americans have a heck of a job telling each other about hellgrammites. On account of one place a hellgrammite is known only as a Dobson. Another place it's a water grampus. In fact it probably has more local names than any other critter in America with the possible exception of the ruddy duck. These names include ho-Jack, hellgie, water crawler, flip-flap, snake doctor, goggly goy, bogart, bass bug, conniption bug, amly, clipper, pinch bug, hell devil and stone crock.

Properly, the hellgrammite is merely the larval stage of the Dobson fly.

The big green and juicy caterpillars of the larger moths, particularly the "hickory horned devil", six-inch larva of the splendid regalis, are a bit more spectacular than the three-inch hellgrammite. But no other American insect is so awesome as the male Dobson fly. The old boy has a five-inch wing span and crossed pincher-like jaws over an inch long (see picture). So the larva and adult take the All-American award as the gosh-darndest father and son combination of the insect world. Furthermore, the life history of Corydalis cornuta is a blinger.

We now pause to dally over it.

It is a fine June night at the Country Club. The porch light shines on the dancing gals and guys. Zooming sedately around the light is a monstrous bug resembling an overgrown dragon fly playing fullback. The gal's boy friend, bravened up by the protective instinct and on account of he is trying to establish himself as head of the local pecking order, mounts a chair and closes his mitt on the fearsome flier. But not for long. It bites. The boy friend lets go. The bug barges away around the corner and lights on a screen.

At this point another young buck steps up and allows as how Joe should have examined his quarry more expertly before grabbing. It not only was a Dobson fly, he says, but a *female* which, unlike the long-jawed male, can bite, and very deftly, too.

"Is zattso?" croons the gal. "How wunnaful you know your nature. Leave us go look at the lotus buds upon yon lush lagoon."

All of which should be a lesson to you boys and girls—science is fun.

Now let's go back to Miss Cornuta, stroking her slender antennae on the window screen. Hardly do we get there when a male arrives. His antennae are longer (the better to find you with, my dear) and his general expression is like a walrus after a swig of lemon juice. Miss Cornuta makes like she is going to take off. But with an adroit manipulation of his long and otherwise useless jaws he restrains the fluttering of his fickle spouse.

Next thing we know, Mrs. Cornuta is flying toward the nearby creek. There she selects a bunch of maple leaves overhanging the current and proceeds to lay her inch-wide egg masses. Each mass contains two or three thousand cigar-shaped eggs set in tight concentric circles. It's a precision job.

On hatching, the tiny larvae drop directly into the water where they begin a remarkable aquatic existence lasting two years and eleven months. It is a highly vulnerable life for, despite the large number of eggs produced, the full-grown larva and the insect adult are comparatively uncommon.

The hellgrammite is almost wholly carnivorous and probably consumes many thousands of the larvae of May flies, stone flies, and other aquatic animals. Thus they may be regarded in some streams as serious competitors of fish for food. In fact under certain conditions they themselves may be serious predators of fish fry.

On the other hand they may be an important source of fish food. That was the theory behind the law which prohibits the taking of hellgrammites from Cobleskill Creek and in Schoharie Creek above Burtonville.

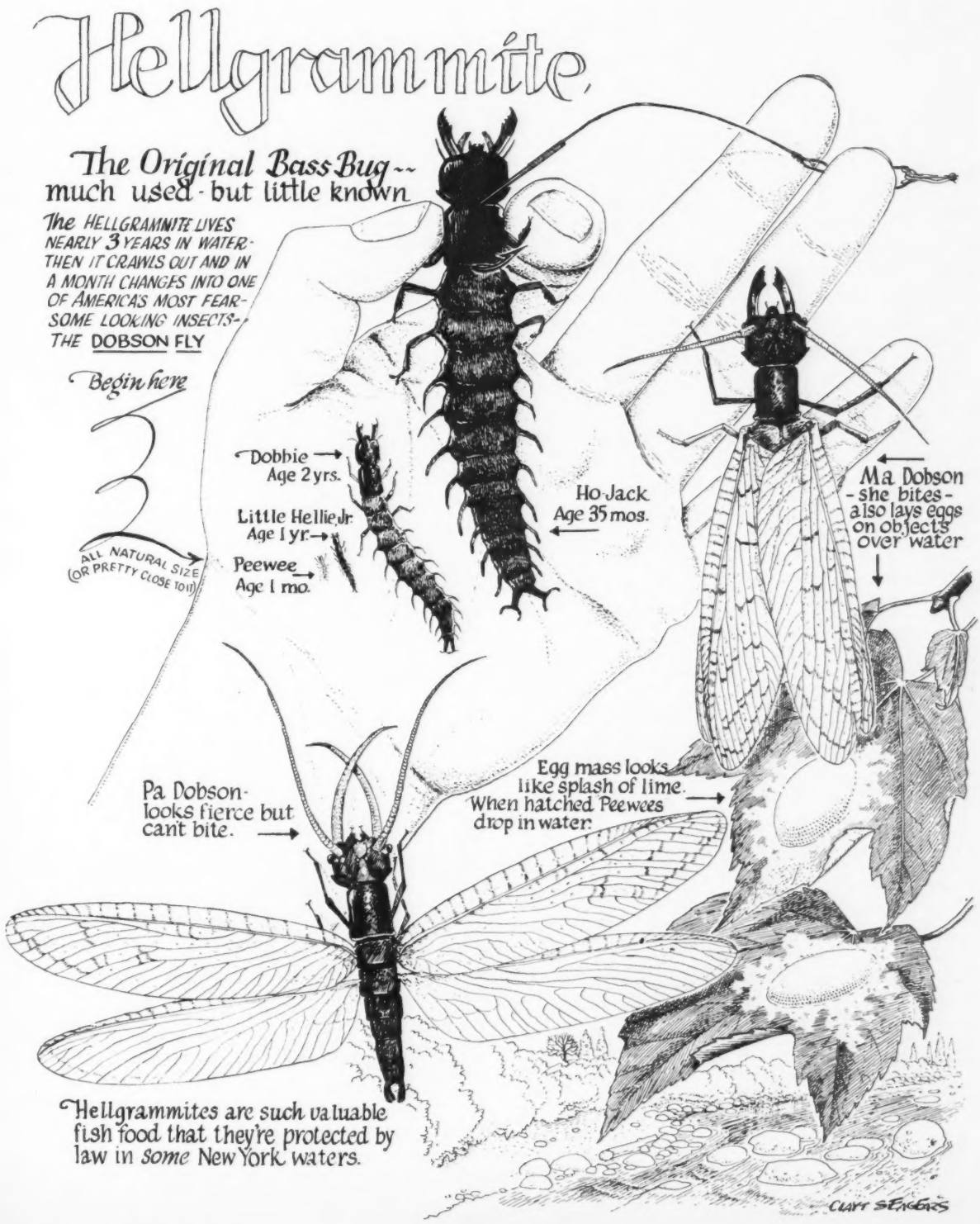
IN any event the life cycles of aquatic insects are exceedingly complex with a bewildering balance existing between the many vegetarians, like the May fly larvae, and such of their underwater enemies as the carnivorous hellgrammites, stone fly larvae and others. If the balance didn't exist, Man might find himself knee-deep in May flies, or black flies. Or, more pleasantly but less possibly, knee-deep in big fat fish.

But let's get back to the hellgrammite before we dizzy ourselves with theorizing. Once in the water (and safely situated under a stone in fast water), the tiny young begin to eat and moult, eat and moult, until 35 months later, normally in May, they obey that impulse and crawl out on land. Then they search frantically about at night for a log or stone under which they moult their tough hides and become pale yellow pupae. A month later they crawl from their skins for the last time, pump up limp wings and flap grotesquely away in search of mating material with all their hellgrammite.

All this leads to a warning. If you don't want to be bitten by the fishing bug, don't handle any.

—CLAYT SEAGEARS

By Clayt Seagears


Hellgrammite
The Original Bass Bug -- much used - but little known
The HELLGRAMMITE LIVES NEARLY 3 YEARS IN WATER - THEN IT CRAWLS OUT AND IN A MONTH CHANGES INTO ONE OF AMERICA'S MOST FEARSOME LOOKING INSECTS -- THE DOBSON FLY
Begin here
ALL NATURAL SIZE (OR PRETTY CLOSE TO IT)
Dobbie → Age 2 yrs.
Little Hellie Jr. Age 1 yr. →
Peewee → Age 1 mo.
Ho-Jack Age 35 mos. ←
← Ma Dobson - she bites - also lays eggs on objects over water
Pa Dobson - looks fierce but can't bite. →
Egg mass looks like splash of lime. When hatched Peewees drop in water. →
Hellgrammites are such valuable fish food that they're protected by law in some New York waters.
CLAYT SEAGEARS

RED-BELLIED SUNFISH
Lepomis auritus (Linnaeus)
Breeding colors from adult male 5 13/16 inches long

BLUE-GILL SUNFISH
Helioperca incisor (Cuvier and Valenciennes)
Breeding colors from adult male 8½ inches long